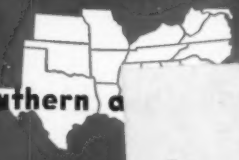
ELECTRICAL SOUTH



Serving the 18 Southern a

Wholesalers air problems at SEWA "Industry-Day" meeting — page 26

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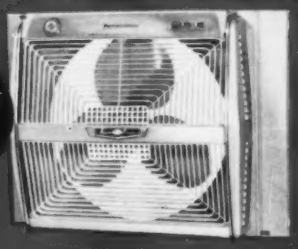
MORE EYE APPEAL

Air Berns King



New! "Dual-Diffuser" Louvers—slimmer, modern design—richer, more striking styling. The fan line you'll be proud to display and sell . . . in a complete selection of Window, All Purpose and Fan Mobile models.

BERNS AIR KING IMPERIAL DELUXE. Electrically reversible, 3 speed push button control automatic thermostat, 20" model. Has new "dual-diffuser" louvers and capacitor motor. Golden control panel with ivory louvers and beigetone finish. The first window ventilator that actually adds beauty to any room. 5 year guarantee. Model AV20PN. List Price $59.95

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More models incorporating Automatic Thermostat—Push Button Control—Electrically Reversible operation. Now you can offer your customers all the most wanted features in a wider variety of America's finest fans. Display Berns Air King and watch prospects sell themselves!

BERNS AIR KING ALL PURPOSE FANS. Available in 20" and 22" sizes . . . all with Retractable Control Handle incorporating automatic thermostat and 3 speed push button controls. "Dual-diffuser" louvers and 5 year guarantee on all models. Two models electrically reversible, one manually reversible. Swivel stand extra on all models. All models come complete with side panels. Series "RT". List Prices from $59.95

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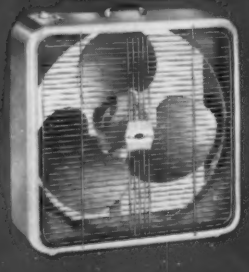

Sell the best! Berns Air King fans rated first in quality and performance by America's leading independent consumer testing laboratory.* There's a size, model and price to meet the needs of every prospect. You can feature a *Complete 5 Year Guarantee* on 17 different Berns Air King Fans!

BERNS AIR KING MULTI-PURPOSE ECONOMY MODELS. Greatest fan values you can offer! Famous Berns Air King quality in a 20" Reversible Multi-Purpose Portable Fan for window, floor, table, or desk use. Has 3 speed control. Handsome Beigetone Finish. 5 year guarantee. Attaches and removes from optional adjustable window panels without tools. RA20 (illustrated) List Price $39.95

Model RA14, 14" model, with casement window mounting bar. List Price $29.95

BOOTH 496-498
Jan. Housewures Show Navy Pier

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GEDNEY'S RIGHT THERE IN YOUR CORNER

helping save time . . . hold down costs

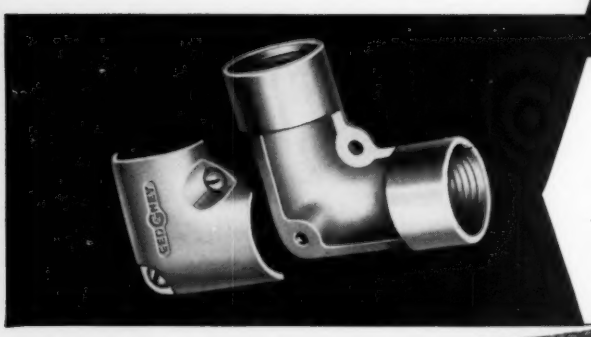
CORNER FITTINGS? Well, here are three that have proved immensely popular for the simple reason they're easiest to install—save time and labor that really counts up. Like the rest of the full Gedney line they're made of unbreakable malleable iron...accurately machined and threaded... individually inspected. Order Gedney—always—for lowest installed costs!

90° CORNER ELLS

Fitted with gasketed cover. Both ends female. Made of malleable iron, cadmium plated. Available in a full range of sizes from ½" to 2".

90° CORNER ADAPTERS

Fitted with gasketed cover. One end male, one end female. Made of malleable iron, cadmium plated. Your choice of sizes from ½" to 2".



CORNER PULL-IN CONDUIT ELLS

Today's top specification for space-saving, machine wiring, easy wire pulling. Malleable iron, cadmium plated. Sizes run from ½" to 2".

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Volume 37 **Number 3**

Postmaster, Send notices by Form 3579 to 806 Peachtree St., N. E., Atlanta 8, Ga.

An important message from Southwire about aluminized steel wire

FOR ACSR CORES, GUY STRAND, MESSENGER AND GROUND WIRES, TELEPHONE AND STATIC WIRES

SOUTHWIRE is proud to be among the first in the industry to offer *aluminized steel wire** in our full line of steel wire products. To electric and telephone systems plagued with costly rust and corrosion problems, this new product offers added protection at substantial savings. Here are the facts:

- Laboratory tests indicate Aluminized Steel compares most favorably in corrosion resistance to Class B Zinc coated steel wire.
- Field tests indicate Aluminized Steel is equal or superior in holding or slippage characteristics to galvanized strand.
- Aluminum oxide protection retards penetration of most corrosive media.
- It offers electrochemical protection in the event that the coating should become nicked or pierced.
- Aluminized strand can be stretched or sagged with the same tables as for comparable galvanized strand.

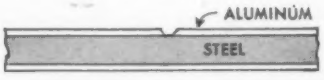
Wherever salt air or industrial atmospheric conditions present a rust or corrosion problem, SOUTHWIRE Aluminized Steel Wire products warrant your serious consideration. Our representatives will be glad to discuss the matter with you, or your inquiry will be welcomed at our plant.

*Acco Aluminized

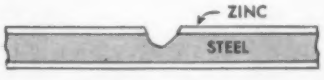
STRENGTH OF STEEL • CORROSION RESISTANCE OF ALUMINUM

"HOT-DIP ALUMINUM COATED"

ELECTROCHEMICAL PROTECTION OFFERED BY ALUMINIZED WIRE



Should the coating become nicked or pierced, exposing a small area of steel, the position of Aluminum in the Electromotive Force Series of Elements in relation to iron or steel is such that slow and long-range Anodic protection is afforded.

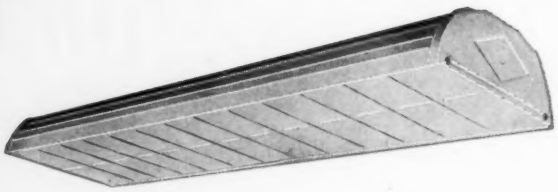


Zinc to steel galvanic action is similar to that of aluminum to steel; however, since zinc oxide is far more readily soluble by the elements, the zinc coating is rapidly sacrificed.

Southwire Company

TErrace 2-6311 CARROLLTON, GEORGIA

L&P Fluorescent Fixtures



THE PEABODY

An efficient, economical unit that creates abundant illumination. Especially good for schoolroom, office, or any location where a general field of light is wanted.

In the Spotlight FOR MARCH

This L & P fixture is only one of Light & Power's complete line of fluorescent fixtures—with fine material, expert craftsmanship and quality control built into every unit. The result? Dependability, beauty and efficiency . . . every time!

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ELECTRICAL SOUTH

SERVING THE 18 SOUTHERN AND SOUTHWESTERN STATES

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This Modern Building Has Life-time Wiring Protection -- Thanks to

YOUNGSTOWN "BUCKEYE" CONDUIT

First National Building, Tulsa, Okla.
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Architect: Carson & Lundin, New York, N. Y.
General Contractor: Manhattan Construction Co., Muskogee, Okla.
Electrical Contractor: Western Division of J. Livingston Co., St. Louis, Mo.
Conduit Supplier: Westinghouse Electric Supply Co., Tulsa, Okla.

Fifth and Boston Corporation's strikingly beautiful First National Building at Tulsa, Oklahoma, utilizes quality-controlled Youngstown "Buckeye" Black Enameled Full Weight Rigid Steel Conduit exclusively, for protection of its all-important electrical wiring system.

Nationally-known building owners, leading contractors and progressive architects realize that electrical systems that don't function safely and efficiently are definitely a bad investment. So to guard against this costly condition they specify Youngstown "Buckeye" Conduit for its long, trouble-free service life.

"Buckeye" Conduit is easy to fabricate on the job—easy to fish wires through—and thoroughly corrosion-resistant to damaging elements such as water, moisture, vapor, dust and dirt.

Leading distributors in every industrial and electrical market are ready to serve you quickly from their ample stocks. They're as near as your phone—why not call today?

Standard-threaded rigid steel conduit is the only wiring system approved today by the National Electrical Code as moisture-, vapor-, dust- and explosion-proof for use in hazardous locations and occupancies.

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THE YOUNGSTOWN SHEET AND TUBE COMPANY
Manufacturers of Carbon, Alloy and Yoloy Steel
General Offices - Youngstown 1, Ohio
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MIKE THE MOLE SAYS: *Give the GUY a CHANCE*

there's a CHANCE ANCHOR for every guying need

8-WAY EXPANDING

The guy load is distributed all around the anchor—no wasted space between blades. Usually installed in clay or loam.

NEVER-CREEP

Made of structural steel. Pulls *entirely* against solid, undisturbed earth. For extra heavy loads in clay or loam.

NO-WRENCH SCREW

For hand or machine installation. Pitch-controlled blade goes down faster and adds to holding power in sandy soil, soft clay or loam.

CROSS-PLATE

For heavy-duty anchoring in machine-bored holes. Holds better than logs or slugs. Saves time and money.

SWAMP SCREW

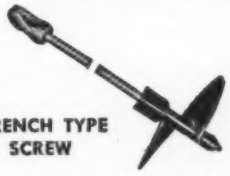
For swamps, marshes, quicksand, river crossings or seasonally flooded areas. Screws down deeply by adding sections of pipe.

8-WAY CONE

Acts as inverted wedge. Flaring base and flat faces increase wedging action. Used in rocky areas with rock wedging.

EXPANDING ROCK

No grouting necessary. The greater the pull, the tighter it wedges against solid rock. Set in 2" drilled hole.



WRENCH TYPE SCREW

All steel—double arc welded. Anchor hub absorbs installation strain. For light loads in sandy soil, soft clay or loam.

POLE KEY ANCHOR

Keys poles at the butt to reinforce them against unbalanced loads in soft soil. Ideal for congested urban areas.

Both the soil type and condition are important factors in determining the type of installation and the kind of anchors to use. That's why Chance Anchors are made in so many types and sizes. The anchors shown above are made in a wide variety of sizes. Each type is designed for certain soil and guying conditions. Each of these anchors will do its specific job better than any other anchor you can choose.

Protect your investment in line construction. Analyze your soil and guying conditions, and specify the Chance Anchors that meet your particular requirements.

There is a CHANCE Anchor Distributor in your area who can probably fill your order directly from stock.

Specify* CHANCE *for Service!

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Economic comment

by J. Whitney Bunting, Ph.D.
Contributing Economics Editor

Stock price readjustments

As has previously been reported on this page, the stock market has been going through a rather strenuous period of readjustment. Many of the leading issues have tended to sag slowly to the vicinity of their 1956 "lows" and then, on occasion, have made rather startling recoveries.

This situation often provides some investors and economists with alarm, for they can well remember the serious situation in 1929, touched off by a stock market crash of major proportions.

The great weight of fear seems to be generated in the minds of those individuals who have least knowledge of the stock market and the factors responsible for price variations. In many instances, this "fear complex" is a part of the emotional make-up of the new investor and their reactions tend to sharpen and make more violent the normal price fluctuations to be anticipated in any market place.

The stock market has often been referred to as a quasi-commodity market, inasmuch as in truth people are buying and selling ownership in rather complex commodities, namely, industrial corporations. As a result, there is ever present the normal price setting factors of supply and demand. Behind this there is a continuing appraisal by market participants of the true worth of the business enterprise.

If a new electric appliance should be offered on the public market, certainly prospective buyers will weigh the innate value of the product in terms of the price quoted. It is just so with the stock market. Periodic price adjustments reflect in many cases the opinions of buyers and sellers in respect to the values behind the stock certificates.

Such an explanation is, of course, very elementary and does not consider adequately the maze of potential economic and financial factors that can enter into the pricing of stock issues. Nor does it consider the great impact of social and psychological forces that may be unleashed upon the market's price structure. However, as a fundamental fact, it has great importance.

In the present situation, there is a definite readjustment noted with many issues reaching for levels that are realistic in terms of the operating results and the financial strengths of the corporations behind the securities. Such a readjustment is healthy and portends no dangers to the economic system. If other factors, now not presently visible, should enter the picture, it might change the forecast, but as the situation now stands, there is every reason to believe that the market will continue to show strength and should resist the downward pressures of the present period of reappraisal.

Appliance marketing

Recent changes in marketing procedures for home appliances have given strength to the belief that the buyer (and user) is now being considered by manufacturers to an extent not reached previously. The whole structure is now beamed directly at what the consumer wants and not what industry thinks the consumer wants.

This makes a great deal of sense, but it also shows the extent to which the consumer controls the market as contrasted to the seller's control of some few years ago. No longer must the consumer accept a product, a style, a color, just because there is no variety on the market at a reasonable price.

In city areas, where domestic help has increased in cost to the point where only an outstanding income can afford their hire, the use of appliances has changed an entire style of living. The housewife now finds herself faced with work to be done and is on the lookout for better and more efficient techniques. This has created a boom in the appliance business but has also required producers to plan such equipment with an eye to consumer desires more than ever.

For example, a dead white color scheme on kitchen or laundry equipment might have been satisfactory if the product were to be operated by an employed maid. However, the lady of the house now requires a color harmony that makes the daily housekeeping chore pleasant and attractive. Nothing less will satisfy. Methods of operation must be simple as well, and because of the great dependence upon mechanical appliances, service for repair and installation must be economical, efficient, and thoroughly presentable.

Dealers who represent manufacturers in this field are in truth partners in the production and distribution of these products. Greater care is now taken in the awarding of franchises and dealerships. More consideration is given to the training of service personnel by manufacturers even though such people are not truly employed by the manufacturer.

In fact, the consumer can now look not only to the reputable dealer for proper treatment and servicing but also to the manufacturer for redress if things go awry. This is an added value occasioned by the strength of the consumer in the market place.

Dr. Bunting is a well-known economist and educator having special knowledge of the South.

Announcing . . .

a new hinged design*

in ceiling

pan fixtures by

PERFECLITE

Perfeclite now offers a new **hammer lock** design in incandescent ceiling pan lighting fixtures. No other ceiling pan fixture on the market today has all these engineering features:

- Globe opens on **hinge** for quick easy cleaning and relamping.
- Unique **safety locking fitter** holds globe in place without bothersome screws, unsightly extensions or trick springs. Globe is secured with lugs by simple twist of the wrist.
- Lip of globe is completely protected against breakage by a **steel protector ring.**
- Provides **ceiling illumination** as well as **evenly distributed floor lighting.**
- Minimum amount of metal, maximum amount of glass results in **highest light efficiency.**

Here is a unique ceiling pan fixture design for either commercial or residential installation. For further information fill in and mail the attached coupon today.

Perfeclite's new **hammer lock** fixture is available in the following sizes:

Model	Glass Diameter	Wattage
HH-9	8″	2- 40 W
HH-11	10″	2- 60 W
HH-13	12″	2- 75 W
HH-15	14″	2-100 W
HH-17	16″	3-100 W

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Fixtures are Underwriters Laboratories, Inc. approved.

*Patent pending

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Address.....

City.....State.....

PERFECLITE PRODUCTS
THE MARK OF LIGHTING SERVICE

Compare Cost of Regulators and LTC Transformers

Regulators save $7,504

Here are the four steps needed to make this comparison:

1. **Select substation size.**
2. **Determine percent regulation required.**
3. **Select proper size regulating unit, based either on current or kva, and range of regulation required.**
4. **Compare cost of LTC portion of transformer and 3 distribution regulators.**

In this example, the substation size is 7500 kva, 328 amperes, 13,200 volts, self-cooled. Regulation required is +10% −5%.

Key to savings is *unequal* range of regulation using *Vari-Amp*

Regulation needs are figured either on basis of setting permanent taps of transformer up 5%; or using an alternate voltage on low voltage winding to provide a 5% boost.

Then only a 5% raise from the regulator is needed. On maximum load the transformer raises voltage 5%; regulator raises voltage 5% . . . a net raise of 10%.

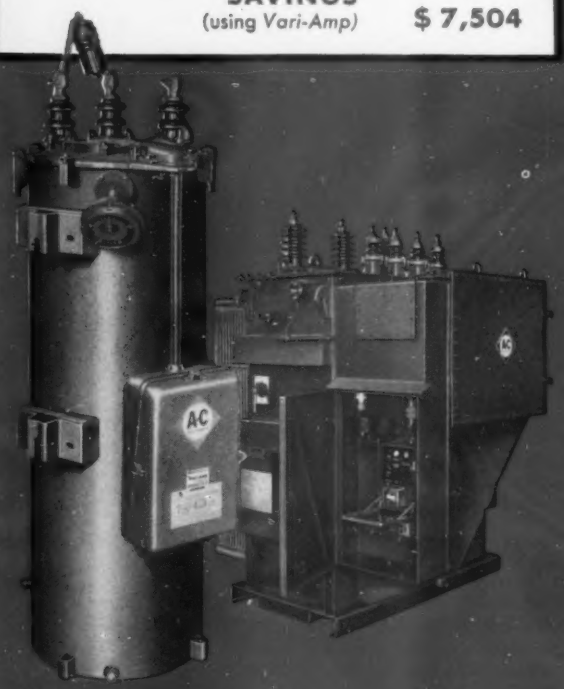
This requires regulators to carry 7500 through kva or 328 amperes at the 5% *Vari-Amp* position.

On minimum load the transformer raises voltage 5%; regulator lowers voltage 10%, which gives a net result of −5%. The regulator is allowed to go to −10% because load current has dropped below the 10% current rating of the regulator.

The selection: regulators rated 167 kva, 7620 volts, 219 amperes.

Comparing costs shows a saving of $7504 using Allis-Chalmers distribution regulators with *Vari-Amp*.

LTC on transformer with ±10% regulation - - - -	$19,174
3 Distribution Regulators with +10% −5% regulation - -	11,670
SAVINGS (using *Vari-Amp*)	$ 7,504



See what you can save!

Get a bid on A-C regulators next time you figure a substation. Ask your nearby A-C office or write for "Key to low cost regulation," No. A-5307. Allis-Chalmers, Power Equipment Division, Milwaukee 1, Wisconsin.

Allis-Chalmers Originators of:
- 5/8% step regulators
- Unit construction
- *Vari-Amp*

A-5297

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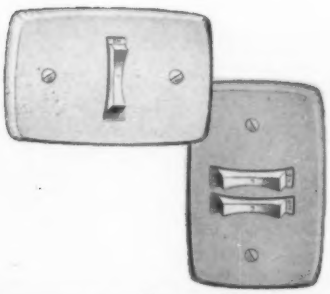
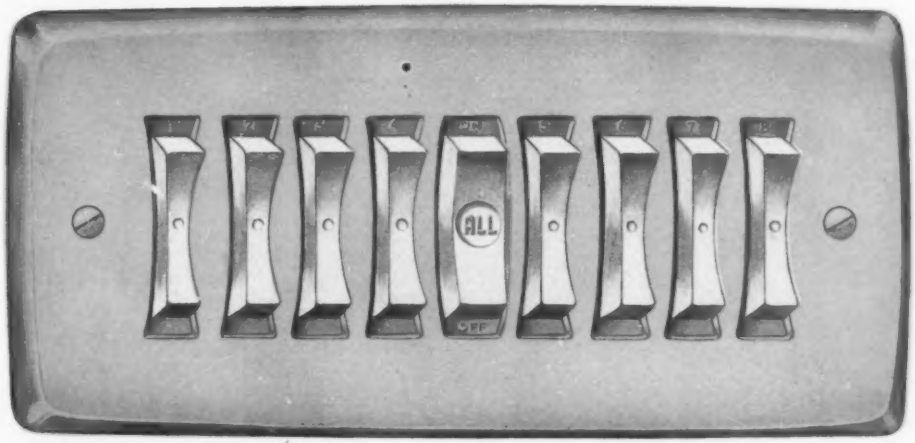


switches your customers want

And no wonder. They're not just remote-control switches, not just low-voltage switches. They're Remcon's dramatic new, Hi-Fashion Switches. Show them to your builder-customers now—and start raking in extra Remcon profit on every wiring job.

REMCON the easiest switch to install... is now the most beautiful switch of all!



master control with one-hand operation

You can control lights in 8 rooms individually or all 8 simultaneously with one switch. Definite on-off positions. Completely fool-proof operation. Color-coded for instant identification of each switch.

complete line of matching switchplates

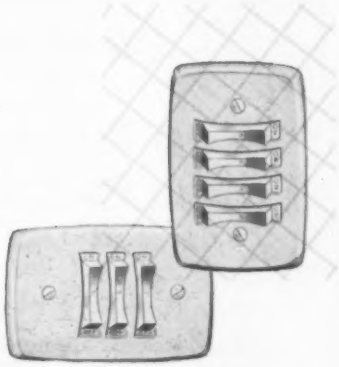
for 1, 2, 3, and 4 switches. Choice of buff or transparent wth gold insert . . . the insert can also be used as a template to cut out matching wallpaper or can be painted to match the wall. All switches glow in the dark.

exciting fashion-wise design

The look of tomorrow on the most modern switch of today. No other switch offers you the handsome contours of the REMCON plate, sweeping down towards the switches . . . or the fashion-engineered "butterfly" design of the REMCON switches themselves. No other switch adds such a gracious note to any decor.

famous, easy, remcon low-voltage installation

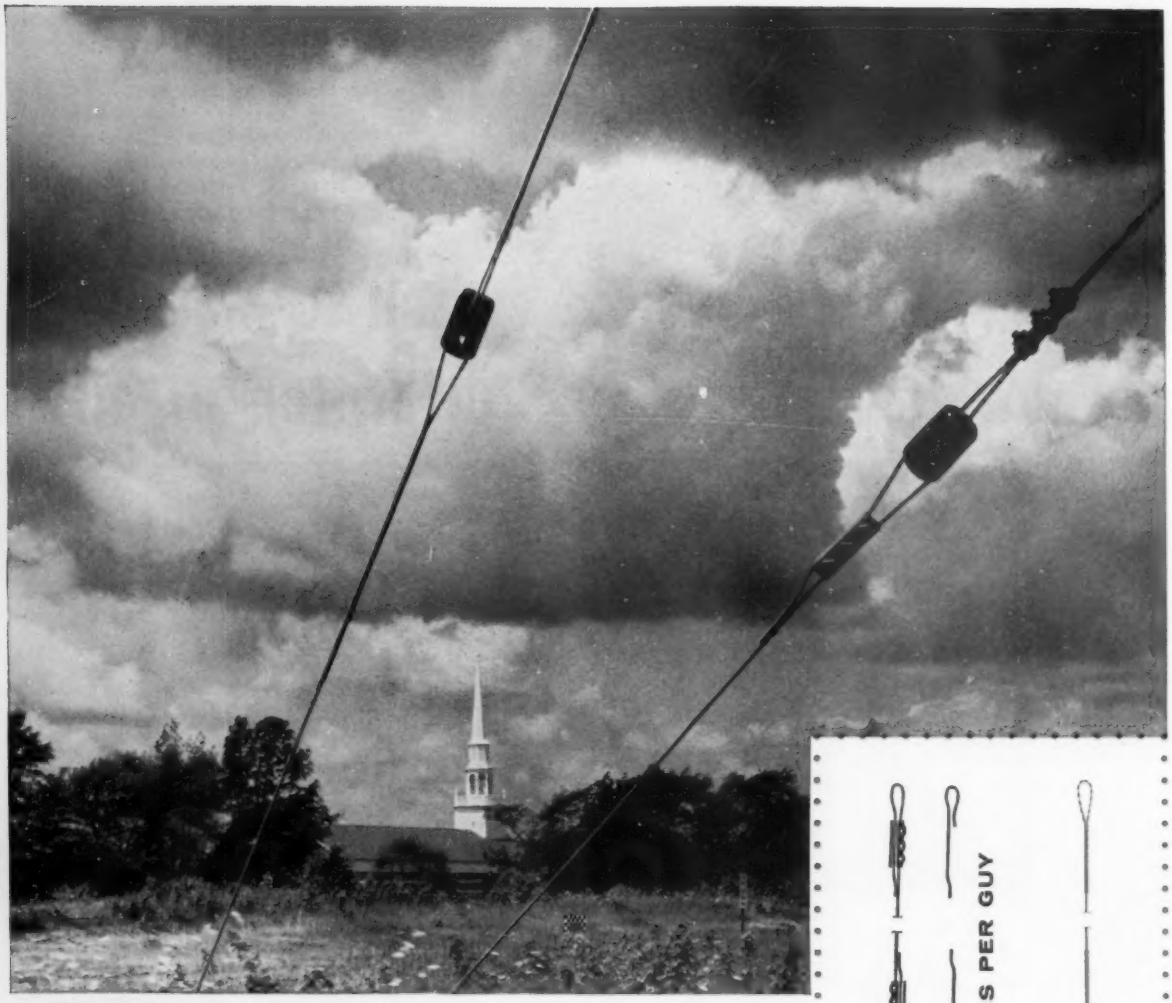
REMCON is the only low-voltage system with a transformer built right into the relay. It's the new, modern, simplified wiring method. Now, you have an irresistible combination for your customers—low voltage, remote-control switching with the look of tomorrow—at little more than the cost of ordinary switching!



ask your jobber to show you

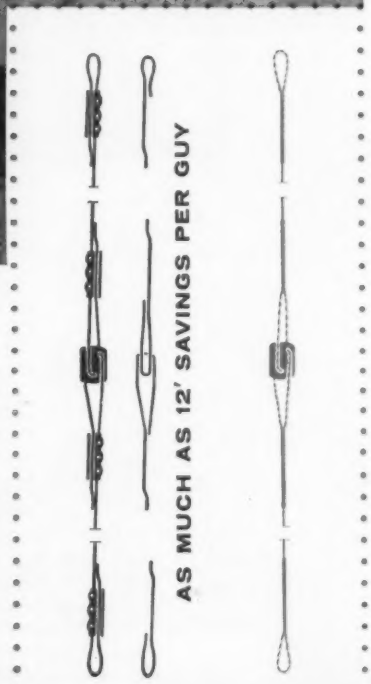
REMCON®
HI-FASHION
SWITCHES

Pyramid Instrument Corporation, Lynbrook, N.Y. makers of the world-famous AMPROBE snap-around volt-ammeter.



Up to 30% savings in strand... with PLP Guy-Grip Dead-Ends

You will find real guying economy with PLP Guy-Grip dead-ends. Because they eliminate strand looping, you can use *shorter, straight* lengths of guy strand. This means as much as 12 feet savings in strand per guy. What's more, the finished installation is neat, streamlined, efficient.



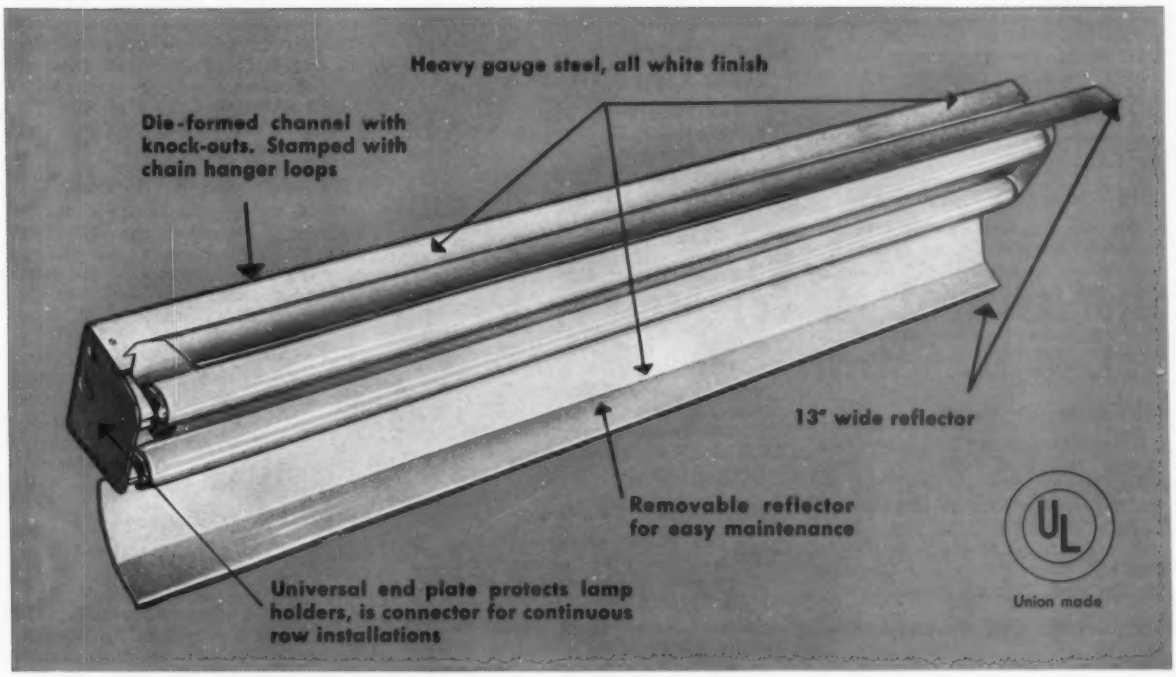
PX-80

Made in accordance with or for use under U. S. Patent No. 2,761,273; other patents issued and pending.

PREFORMED LINE PRODUCTS CO.

5349 ST. CLAIR AVENUE • CLEVELAND 3, OHIO
DEPT. NO. PR5B
Telephone: Cleveland EXpress 1-3571

Virden Value Specials


Heavy gauge steel, all white finish
Die-formed channel with knock-outs. Stamped with chain hanger loops
13" wide reflector
Removable reflector for easy maintenance
Universal end plate protects lamp holders, is connector for continuous row installations
UL
Union made

New Industrial Fixtures at Low, Low Prices.

Now you can quote and sell those competitive industrial lighting jobs. Here are industrial fixtures that offer excellent lighting efficiency yet are priced amazingly low. Made by Virden they are quality products, offering many features found only in higher priced units. Available in 48" fluorescent and 96" slimline, 2-lamp fixtures, designed for mounting singly or in continuous rows. They will prove excellent business getters. Ask your Virden distributor about them today. Or mail the coupon below to John C. Virden Co., 6103 Longfellow Ave., Cleveland 3, Ohio.

Available in the following types:

V-10224
2-lamp 40W HPF Pre-Heat 48" Fluorescent Industrial All White Baked Enamel Finish.

V-10225
Small as V-10224 only with All White Porcelain Reflector.

V-10226
2-lamp 40W Rapid Start 48" Fluorescent Industrial All White Baked Enamel Finish.

V-10227
Same as V-10226 only with All White Porcelain Reflector.

V-10328
2-lamp 75WT12 430 MA 96" Slimline Industrial All White Baked Enamel Finish.

V-10329
Same as V-10328 only with All White Porcelain Reflector.

E.T.L. Lead Lag and Cold Weather Ballasts available at slightly higher prices.

virden
LIGHTING

Mail this coupon for more details
John C. Virden Co., Dept. ES-357, 6103 Longfellow Ave., Cleve. 3, O.
Send details on your Industrial Fixtures V-10000 Series.

Name_____

Address_____

City_____

State_____

CATALOGS and BULLETINS

Available Free to Readers of Electrical South upon Request

1011—Electrical Conduits

"Natural Electric Conduits" is the title of the 30-page Catalog No. 603 which describes and illustrates the many types of electrical conduits that are manufactured by National Electric Products Corp., 2 Gateway Center, Pittsburgh 22, Pa.

1015—Squeezon Connectors

The Squeezon, a new compression connector for power lines, is fully described in bulletin "SQ" available from the James R. Kearney Corp., 4236 Clayton Ave., St. Louis 10, Mo. The Squeezon features greatly increased electrical and mechanical efficiency.

1019—Service Panels

Information on protective electrical control centers for homes, apartment buildings, service stations, and industrial applications is contained in Bulletin PM-355, "BullDog Pushmatic Electric-Centers," issued by BullDog Electric Products Co., 7610 Jos Campau, Detroit, Mich.

1071—Plugs and Receptacles

Additional loose-leaf sheets for insertion in the Pylet Catalog 1100 are available from the Pyle-National Co., 1354 N. Kostner Ave., Chicago 51, Ill. These pages describe a wide range of plugs and receptacles for special purposes.

1079—Washer Lugs

Krueger and Hudepohl, 1041 Evans St., Cincinnati, Ohio, in their Bulletin 8-DF, give information and catalog listings for their complete line of K&H solderless terminal folding double cupped washer lugs. The folder explains uses and applications of all the lugs.

1085—Lighting Fixtures

Eastern presents their most complete catalog, 32 pages of engineered lighting data, including a variety of fixtures for all architectural, commercial and industrial applications. Eastern Fixture Co., Inc., 170 Vernon St., Boston 20, Mass.

1087—Fittings Catalog

The M. & W. Electric Mfg. Co., Inc., East Palestine, Ohio, has available their new 28-page catalog 53, covering Service Entrance Mast Fittings, Service Entrance Cable Fittings, Ground Clamps, Rods, BX and Romex Connectors, Conduit Fittings, Wireholders, Insulators Supports and Cable Racks.

1097—Cord Catalog

A complete 48-page catalog is available from the Cornish Wire Co., 50 Church St., New York 7, N. Y. containing all data on flexible and portable cords, lamp cords, heater cords, cordsets, radio and electronic wires.

1099—Lighting Fixtures

Fluorescent and incandescent luminaires for schools, offices, stores and factories are illustrated in a series of bulletins issued by Curtis Lighting, Inc., 6134 West 65th St., Chicago 38, Ill. The entire series or any individual bulletins may be obtained upon request.

1103—Compression Connectors

Burndy's new Bulletin CR-1A features the new Crimpit technique for all overhead distribution connections. The bulletin provides information on the entire Cripit line, including details of hydraulic installation tooling and accessories. Copy available from Burndy Engineering Co., Inc., Norwalk, Conn.

1107—RW and RHW Wire

"The Ampere Squeezer," a booklet explaining visually the effect of ambient temperatures on current carrying capacities of RW and RHW Wire. Simplex Wire & Cable Co., 79 Sidney St., Cambridge 39, Mass.

1109—Anchoring Devices

An illustrated 32-page catalog, No. 65, describing more than 25 anchoring and drilling devices for making fastenings to masonry, is available from the Arro Expansion Bolt Co., Marion, Ohio.

1135—Wiring Devices

Catalog No. 51, containing complete electrical wiring device line of Leviton Mfg. Co., Brooklyn 22, N. Y. is a 96-page thoroughly illustrated one. Included are such features as the Kwik-Change line, with wiring diagrams, a general index, and an index to catalog numbers.

1155—Wire and Cable

Two catalogs—Bulletin RS-5, and Power and Control Cables, No. 24—available from Rome Cable Corp., Rome, N. Y. Power and Control Cables catalog is intended for utility, construction, and industrial engineering and purchasing personnel as a guide in selection of proper wire and cable types.

ELECTRICAL SOUTH
806 Peachtree St., NE
Atlanta 8, Ga.

March, 1957

Gentlemen:

Please send me the bulletins and catalogs indicated.

(Print Plainly)

Name _____ **Title** _____

Company _____

Address _____

City & State _____

Circle numbers below. Bulletins and catalogs will be mailed promptly.

1011	1015	1019	1071	1079
1085	1087	1097	1099	1103
1107	1109	1135	1155	1167
1169	1175	1195	1197	1209
1211	1217	1219	1223	1227
1229	1231	1233	1237	1239
1241	1245	1251	1253	1255
1257				

with National Electric Xduct Junior, E.M.T.

Only high ductile steel is used in the manufacture of Xduct Junior, E.M.T. The result—you can make bends easily without using excessive pressure. In addition, you'll find that properly handled, Xduct Junior does not flatten and the tight finish will not flake or crack. Good bending is just one Xduct Junior feature. You also get—

Easy Fishing—Xduct Junior has a baked-on inside coating of aluminum enamel that holds friction between conduit walls and wires to a minimum.

Corrosion Protection—National Electric's revolutionary process of electrogalvanizing deposits pure zinc uniformly over the entire outside surface of the E.M.T. . . . assures high resistance to corrosion.

If you're looking for fast installation and complete wiring protection, try National Electric Xduct Junior on your next job.

A screwdriver is all you need with National Electric E.M.T. Fittings

The outstanding holding action of these fittings is obtained when the patented embedding screw is driven home in the tubing wall. Actual tests prove the connection is a vibration-proof bond that won't break or loosen unless the screw is purposely released.

Patent No. 2,455,180

For Dependable Pathways of Power

National Electric Products

PITTSBURGH, PA.

2 Plants • 11 Warehouses • 35 Sales Offices

1167—Industrial Lighting

A four-page catalog insert is now available from the Multi Electric Mfg. Co., Inc., 4223-43 West Lake St., Chicago 24, Ill. The leaflet describes Multi's line of lighting equipment and wiring devices, which include floodlights, vaporproof fixtures, and fluorescent and incandescent fixtures.

1169—Lighting Fixtures

A new 50-page catalog giving illustrations, specifications, and test data for more than 20 industrial, commercial, and residential fluorescent and slimline luminaires has been released by Sta-Brite Fluorescent Manufacturing Co., P. O. Box 291 Riverside Sta., Miami Fla. A section is devoted to Sta-Brite equivalents for federal specifications on fixtures.

1175—Fluorescent Fixtures

Light & Power Utilities Corp., 1035 Firestone Blvd., Memphis, Tenn., has printed a new catalog of fluorescent lighting fixtures. The new catalog is divided into six sections, each printed in its own distinctive colors. First section is devoted to "General Data" and details of L&P manufacturing.

1195—Kitchen Ventilation

Descriptive eight - page folder, Bulletin 620H, showing typical installations of all models in the Clipper line of ventilators is available from Trade-Wind Motorfans, Inc., 7755 Paramount Blvd., Rivera, Calif. Folder includes dimensional drawings of installations helpful to building and electrical contractors.

1197—Convenience Outlets

Four-page bulletin gives complete information on the new P&S No. 500 for adding extra outlets to existing installations. Everything you need in a single package—on steel boxes required. Available from Pass & Seymour, Inc., Dept. ES, Syracuse 9, N. Y.

1209—Fluorescent Ballasts

Advance Transformer Co., 2950 N. Western Ave., Chicago 18, Ill., has recently completed the compilation and printing of a 20-page catalog on fluorescent ballasts and their use. Included are data sheets on available Advance ballasts and a comprehensive installation and operation section and testing procedures. Copies of the booklet are available on request.

1211—Fluorescent Fixtures

Catalog folder No. 911, "Peerlite by Guth," has been announced by the Edwin F. Guth Co., 2615 Washington Blvd., St. Louis 3, Mo. Copies of this new eight-page booklet are available from the company upon request. The booklet is designed for the lighting specialist, giving complete engineering data and dimensions.

1217—Hinged Louvred Ceiling

Light weight, has no visible supporting tracks, producing unbroken louvre pattern in all directions .Perfect alignment assured—it's prefabricated. Louvred ceiling can be combined with fascia plates to form any architectural pattern desired. Catalog No. 544 has full details including installation instructions. Neo-Ray Products, Inc., 315 East 22nd St., New York 10, N. Y.

1219—Electrical Enclosures

Catalog No. 5354-U is a 66-page catalog describing the complete line of steel and aluminum electrical enclosures manufactured for utility use by the B & C Metal Stamping Co., 590 Means St., N. W., Atlanta, Ga. The catalog is well illustrated and contains complete specifications as well as prices on all items in the B & C line.

1223—Circuit Protection

A 24-page illustrated handbook contains suggestions for selecting the right kind of protection for electric circuits, motors, appliances and apparatus. Includes motor wiring diagrams and a complete list showing proper size fuses to use. Available from Bussman Mfg. Co., University at Jefferson, St. Louis 7, Mo.

1227—Conduit Fittings

A new complete 48-page catalog illustrating their complete line of conduit fittings and lighting parts for the electrical wholesaler has been made available by Elliott Electric Products Co., 1513 Olmstead Ave., New York 62, N. Y.

1229—Switch and Outlet Boxes

A new RACO General Catalog is now available listing detailed information on boxes, covers, and bar hangers. The catalog includes data on numbers of wires permitted per box and a list of comparative catalog numbers. Copy available from All-Steel Equipment, Inc., Aurora. Ill.

1231—Conduit

A handy, pocket-size booklet illustrating and describing four ways to greater conduit efficency and lower installation costs has been published by Youngstown Sheet and Tube Co., Youngstown, Ohio.

1233—Troffer Catalog

A 36-page catalog, with complete information on their newly re-designed architectural troffers has been released by Smithcraft Lighting Division, Chelsea, Mass. Divided into sections for selection of lighting units, the catalog gives complete illustrations and data for 1 and 2 foot troffers in all types of ceiling construction. Also included in the catalog is information on ceiling lighting patterns, shielding designs, lighting techniques and applications.

1237—Wireholders

Knox Porcelain Corporation, Knoxville 1, Tenn. has recently redesigned a one-piece metal base style reinforced wireholder, No. 5009. Base and screw are hot dipped galvanized. This wireholder has extra sharp threads and quick starting point to make driving easy. KNOX manufactures a complete line of Porcelain Wireholders, House Brackets, and other Secondary Service Materials.

1239—Heavy and Light Duty Power Derricks

J. H. Holan Corp., 4100 W. 150th St., Cleveland 11, Ohio has available a 4-page catalog on the Series 4700 Power Derrick—a light-duty derrick that lifts loads to 6500 pounds, poles to 55 ft. They also have available a catalog on 3700 Power Derrick containing data on derricks for lifting poles up to 75 feet long and loads up to 12,000 pounds.

1241—Fans

A convenient file folder covering attic and industrial ventilating fans, up to 108" diameter, is available upon request from American Coolair Corporation, Box 2300, Jacksonville 3, Florida. The attractively illustrated catalog pages are bound into the folder, which is available with or without list price sheets.

1245—Exhaust Fans

Two new two-color illustrated four-page catalogs (Bulletin Nos. 6414 & 6514) describing the new Model G Ventura fans for business and commercial exhaust applications and Model K for industrial heavy-duty exhaust applications are now available from American Blower Corp., Detroit 32, Mich.

1251—Radiant Heating Cables

Three folders, describing Ceilheat's three types of radiant cables, are now available from Ceilheat, Inc., 5212 Homberg Dr., Knoxville, Tenn. One folder features the Aristocrat radiant cable for plastered ceilings, another describes Ajax radiant cable for concrete floors, and the third describes Dri-Cell radiant cable for dry-wall construction.

1253—Power Connectors

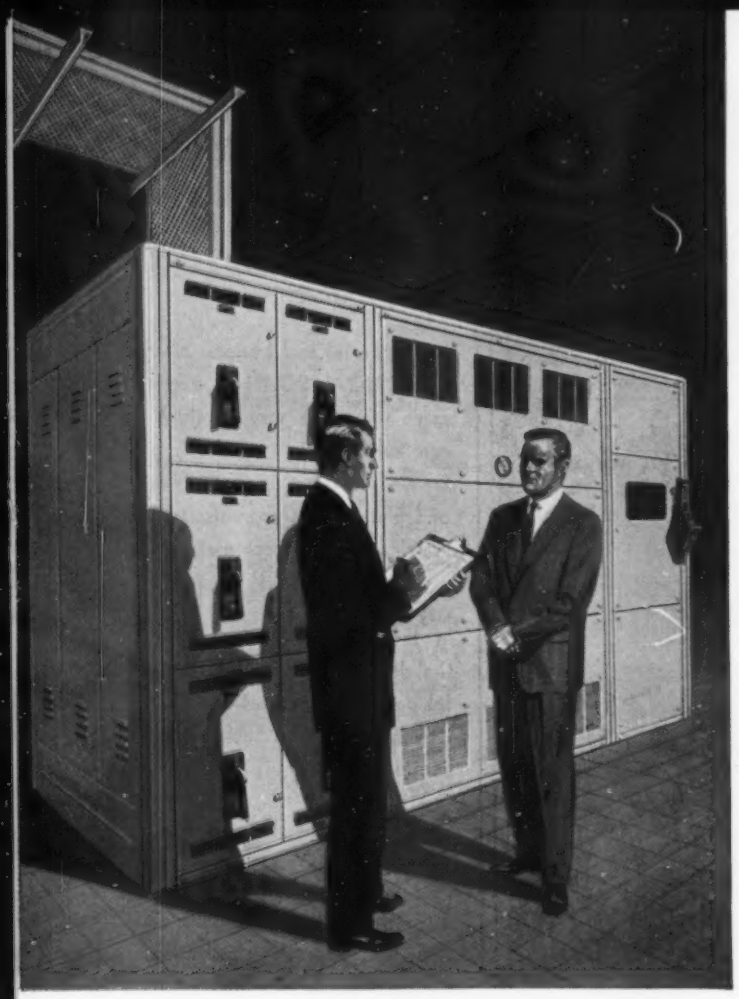
A completely new catalog (No. 526) of power connectors and bus support clamps is now available from Southern States Equipment Corp., Hampton, Ga., superseding catalog No. 525-R. Furnished in a handsome 7-ring binder, the new catalog includes sections on bus support clamps, couplers and angle braces, bar connectors, Tee connectors, stud connectors, ground connectors, parallel clamps, and terminals.

1255—Electrical Tools

Tools for electrical construction, such as Hydraulic Benders, Hydraulic Pipe Pushers, Knockout Punches and Hydraulic Drivers, Cable Pullers, Screw Anchor Expanders, Pipe-Size Bits, etc., are shown in Catalog No. 35-E, published by Greenlee Tool Co., 2136 Twelfth Street, Rockford, Ill.

1257—Centrifugal Roof Ventilators

An 8-page, two-color folder (SDA-220) giving construction features, performance data, dimensions and recommended specifications for the new Centrifugal Roof Ventilator manufactured by The Peerless Electric Company, Warren, Ohio. Other important Peerless Fan and Blower products and a list of Peerless sales representatives are also included.



Exclusive Lo-X Scarf-lap Construction provides rigidity and strength. Tailored lengths overlap and bolt together easily. Elbows, tees and cross sections permit installation to fit specific plant layouts.

The BullDog field engineer stands ready with the detailed information you and your customers may well welcome in planning an efficient power network for new or existing facilities. Take advantage of his know-how in your planning.

Aluminum Lo-X—profitable key to electrical efficiency!

Leading industrial plants everywhere are using BullDog aluminum Lo-X feeder duct as a vital part of their electrical distribution systems. Invariably—it provides the efficiency and flexibility that add to *your* reputation with clients.

You save—your client saves—when you install Lo-X BUStribution® duct! The lightweight, prefabricated aluminum sections cost less—are easy to bolt into overhead runs, saving installation time and money. Next, current-carrying costs are the lowest possible . . . maintenance is reduced to a minimum. Finally, if plant needs change, Lo-X can be relocated without loss. Consult your BullDog field engineer—he'll show you how a complete BullDog system, from safety switches to unit substations, provides the top efficiency, economy and convenience that earn you new and repeat business.

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BullDog Electric Products Company, Detroit 32, Michigan • A Division of I-T-E Circuit Breaker Company • *Export Division:* 13 East 40th St., New York 16, N.Y. • *In Canada:* BullDog Electric Products Company (Canada), Ltd., 80 Clayson Rd., Toronto 15, Ontario.

IF IT'S NEW... IF IT'S DIFFERENT... IF IT'S BETTER... IT'S

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A DIVISION OF I-T-E CIRCUIT BREAKER COMPANY

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STANDARD ELECTRIC MFG. CO.
2401 Federal St., P.O. Box 1138
Dallas 1, Texas

WALKER ELECTRICAL CO., INC.
125 Bennett St., N.W., P.O. Box 8, Sta. D
Atlanta, Georgia

IT PAYS TO HAVE HUBBELL GOOD CONNECTIONS

and here's another **NEW** product

SOLD ONLY THROUGH AUTHORIZED ELECTRICAL WHOLESALERS

UNUSUALLY SHALLOW

GROUNDING DEVICES

Designed For Panel Mounting

The No. 5258, 125 volt, parallel slot receptacle (and its companion unit, the tandem slot 250 volt, No. 5658) is a competitive, yet very rugged, single, flush-mounted device designed for grounding exposed metal parts of portable electrical equipment. It is side wired with green grounding terminal binding post.

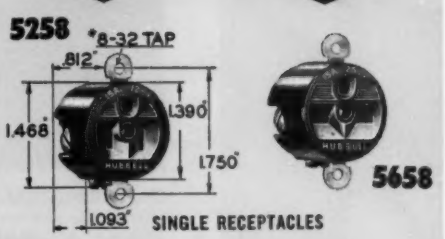
Each unit, when fitted with mounting flange, makes up a new female motor base, Cat. No. 5256 and No. 5656.

Male motor bases (No. 5288 and No. 5668), fitted with "U" shaped pin for grounding, are designed for use with 3-wire, grounding-type cord, connector bodies.

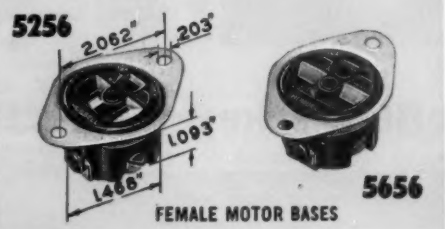
- Round "Shoulderless" design permits mounting in restricted spaces.
- Unusually shallow depth
- Green hexagonal grounding screw
- Rugged bakelite construction
- For use with metallic or non-metallic wiring systems

Parallel Slot 125 VOLT 15 amp.

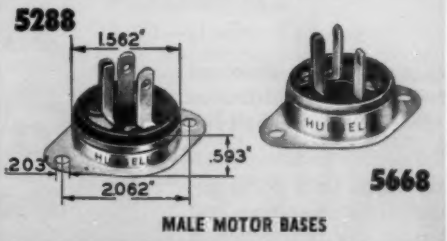
Tandem Slot 250 VOLT 15 amp.



SINGLE RECEPTACLES



FEMALE MOTOR BASES



MALE MOTOR BASES

HARVEY HUBBELL, INC.

HIGHEST QUALITY WIRING DEVICES • MACHINE SCREWS

DEPT. R-2 BRIDGEPORT 2, CONNECTICUT

WIRING DEVICE WAREHOUSE LOCATIONS ASSURE NATIONWIDE STOCK AVAILABILITY

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Dallas 7, Texas
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The editorial and business staff of ELECTRICAL SOUTH is eager to serve you. One way in which we can help you is to make it easy for you to draw upon the wealth of technical and promotional material available from manufacturers.

In the accompanying pages are the descriptions of scores of useful catalogs, application information booklets, and technical publications.

Check over the list of publications available, circle the numbers of the ones you need, and mail the coupon to us with your name, title, company and address plainly written. We will tell each manufacturer to send directly to you the information you want.

The staff of ELECTRICAL SOUTH will be glad to help you with other problems. They will obtain expert advice for you on both technical and business problems. The services of a number of consultants are available. Whether your problem relates to sales promotion, lighting or wiring layouts, applications of the National Electric Code, or equipment application, it will receive careful attention.

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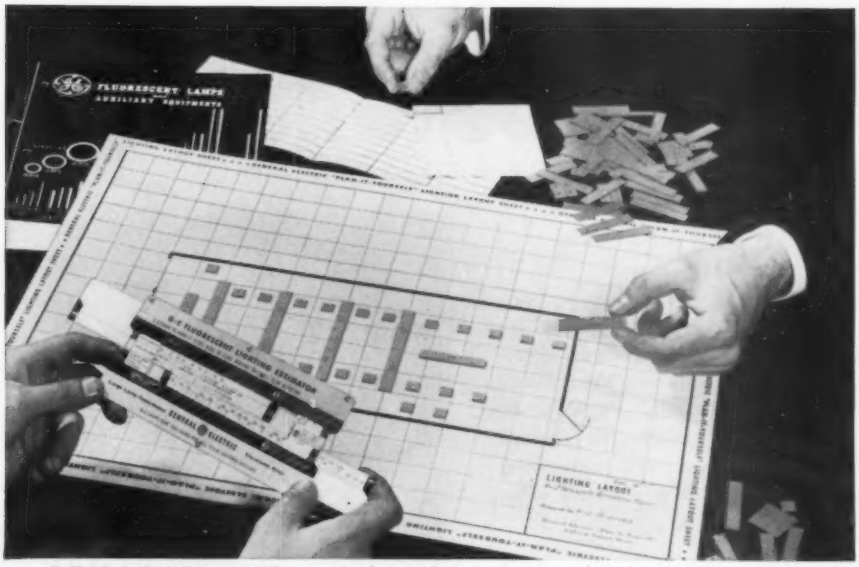
"This kit



G-E Lighting Layout Kit *contains layout sheets; a fluorescent lighting estimator; movable, scaled "fixtures"; gummed "fixtures" for your permanent layout; and a lighting design guide.*

helped me

Mr. Harry K. Flynn *of Welch Electric Co., Urbana, Ohio.*

sell three lighting jobs worth $1,300 . . . all the same day"

New General Electric "Plan-It-Yourself" Lighting Layout Kit can help you sell More Lighting Jobs, Too!

Mr. Harry K. Flynn of Welch Electric Co., Urbana, Ohio, read about the new G-E *Lighting Layout Kit* . . . sent for it . . . and put it to work. *The next day, he used it to help sell 3 lighting jobs totaling over $1,300 worth of business!* Here's how a G-E *Lighting Layout Kit* can help you make more sales, too:

1 **YOU'LL SELL EASIER** because your prospect is in on the planning and he helps sell himself. He visualizes his lighting requirements more easily.

2 **YOU'LL "SELL UP".** Your prospect sees why the new lighting layout fits his needs, so you can sell him a better lighting job . . . and make more profit!

3 **YOU'LL "CLOSE" MORE SALES.** Your prospect okays the completed layout and your sale is half closed, even before a complete cost estimate is made.

Get your G-E Lighting Layout Kit from your General Electric Lamp Supplier today!

Or send $1.75 to: General Electric Co., Large Lamp Dept. ES-3, Nela Park, Cleveland 12, Ohio.

Progress Is Our Most Important Product

GENERAL ELECTRIC

Detailed estimates

Post-mortems after every job help this estimator adjust industry averages to individualized estimating data that takes into account local factors as well as those peculiar to his own company's crew and operating methods. Result: profitable jobs.

Russell McMichael (at desk), Jim Ward (right), and Foreman Enoch Wingert (with hat) consider the weighty problem of totaling an estimate for big-dollar wiring job. Hard-backed files above, plus arrival of daily market advice, keep estimator posted on prices, often before supply houses are alerted, and make his bids more realistic.

◆ "THE ELECTRICAL estimator who relies upon an over-simplification of forms and data sheets in compiling a bid, without considering the results of the shop's most recent jobs dollar-wise, is selling his contractor down the river!"

So speaks veteran estimator Russell E. McMichael, whose Bradenton firm, Ward Electric Inc., handles the wiring of giant shopping centers in Florida to the tune of close to a third of a million dollars annually.

"We invariably hold a post-mortem at the conclusion of a big job," says McMichael, "to find out just how closely man-hours per operation and profit percentages follow our estimated figures, for the financial health of a contractor lies as truly in the field of estimating as does that of a trusting patient in the hands of a surgeon.

"While some of the minor aspects of estimating are properly routine, too much simplification of national data sheets and their averages, and labor units which do not embrace consideration of abnormal job conditions or show scant reflection upon the varying abilities of the shop's journeymen, presage a cutting of dangerous corners that drapes the mantle of 'bid peddlers' around the contractor's shoulders."

Consider local factors

While the Ward company feels that some simplified forms or method is valuable if it saves time without sacrificing safety, and such technique may offer a better over-all picture of the job being estimated, as well as lowering the cost of time and effort involved in compiling it, there is always the danger that the forms will fail to portray the realistic picture as to material and labor costs in his own local bailiwick.

McMichael states his case simply but dramatically: "If you over-simplify estimating, you're guessing!"

"Our practice on bidding is to use the results turned up at the post-mortems of our jobs, and combine our past records with published figures like those in the NECA handbook," says this estimating specialist in commercial installations, who admits to having spent close to 2½ years building up a catalog file of specifications, descriptions of wiring materials, and complete prices of the products of numerous electrical manufacturers.

"For example, if an architect calls for some switch we don't normally stock, we can look up its counterpart quickly in some other maker's catalog which we know will be acceptable under the specs.

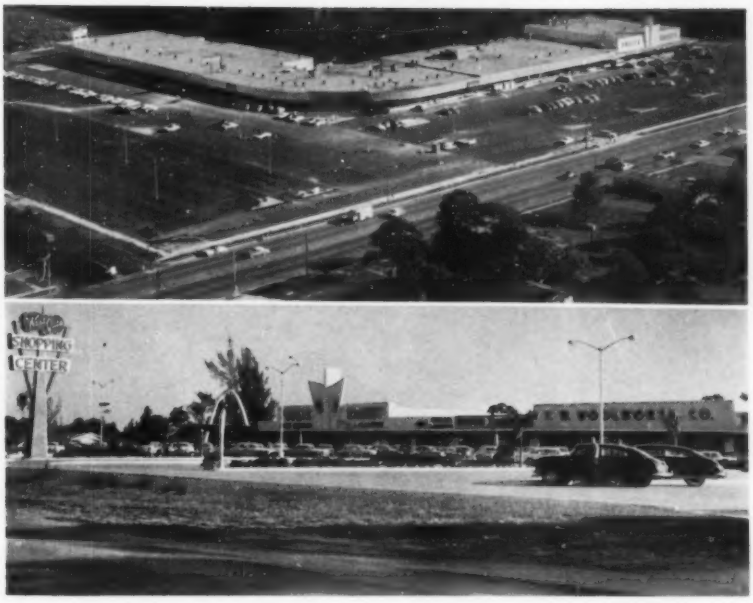
"We subscribe to a price service, and we get notices of price changes every day, and these are used to keep our price awareness up to date. Very often these price-change notices come to us long before they even reach the wholesaler, and this is of inestimable help.

"For example, they enable us to stock up in advance of a price increase. In the case of a fall in prices of an item which is to be used in great quantity on a job, a revised estimate so predicated may mean the difference between losing or winning a contract.

"We take off meticulously every single item on each print for the legitimate contractor can afford to do no less. If this step-by-step plan isn't followed, there is always the danger of beginning to figure on short-changing yourself on materials shopping and quantities, or man-hours required to do the job, or ignoring overhead.

"It is most advisable to read the

assure profitable jobs



(Above) A typical Cobb job is South Gate Shopping Center on the outskirts of Sarasota. Cobb's estimate ran close to $177,000 for the wiring, but subsequent extras boosted this figure close to $200,000. (Below) West Gate Shopping Center, in Bradenton, was a $75,000 wiring job for Ward, who also did a $110,000 shopping center in Sarasota.

entire specifications and not only the electrical specs, to find out, for example, if the air conditioning contractor is to furnish wiring from disconnect switches to all the controls and motors, or whether the electrical contractor assumes this responsibility. A phone call to the engineer or architect on such subjects, readily clarifies the matter.

Examine all prints

"Another valuable feature of examining the complete set of prints of the job is to learn the type of structure it is and the details of construction. That way you can make sure if a 3-inch conduit is to run in a certain location, that there's room for it there. Examination of all the prints thus serves to eliminate many an irksome factor after the job begins. And it serves to pinpoint any items that may not pass local building codes.

"For example, some contain a clause reading: 'Should a bidder find discrepancies or omissions, he shall at once notify the architect in writing.' This joker means that the electrical contractor is expected to comply with all the requirements of the Fire Underwriters, and city, county and State laws as well as codes and labor conditions and regulations of the local utility company, even though none of these are mentioned in the specs, as we found out when we recently wired a school."

In other words, McMichael means that if architects' specs make a mistake in wire size, or they call for an inside service whereas the local code demands a more expensive outside service, it's the contractor's duty to be forewarned. "Know the specs and the job in your mind before you start," said McMichael. "And if specs fail to give a comprehensive layout of wiring runs or equipment, I crawl all over the building and make up our own. That way I can tell what the construction is, and whether panels may be surface mounted or recessed, and what kind of walls the structure consists of.

Job expense items

"Our estimates include such items as 1 per cent of the gross labor cost to indemnify us against tool losses. Our overhead of 15 per cent runs in proportion to our production payroll. Naturally overhead is higher with a small working force; lower with a higher payroll. An average percentage on the length of wiring runs varies from job to job, since the height of the ceiling and the way pipe has to be run are variable factors.

"For example, an 800 ampere disconnect main switch in a Woolworth store took 15 man-hours of estimated time to uncrate and mount on a concrete block wall and to make all the taps and put the fuses in this 3 phase 4-wire panel."

Examples of man-hours figured for various operations in shopping centers in which the Ward company specializes, are a main distribution panel containing 1-400 amp 3 pole 3 phase fused switch; 3-200 amp 2-100 amp and 4-60 amp switches.

Fed by 500,000 CM cable fused at 350,000 CM, the job of uncrating, mounting and making taps was estimated at 41.9 man-hours.

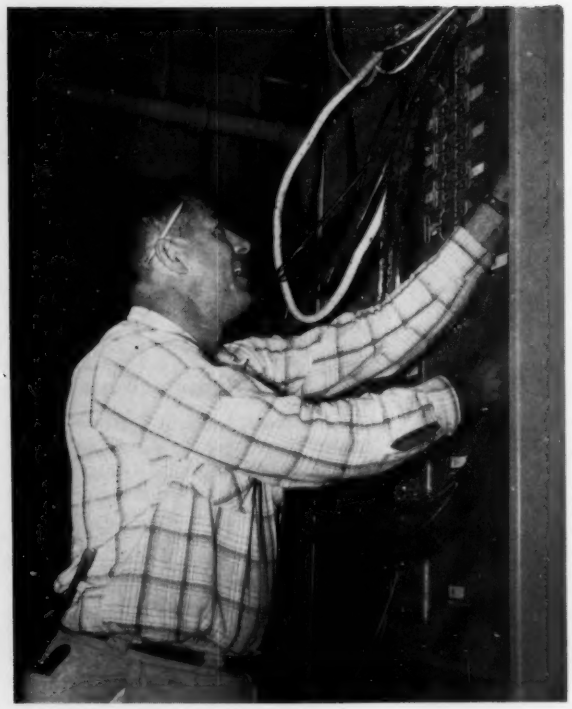
Coming out of the main switch panel was one 4-wire, 26 circuit Type NTP panel which was estimated at 21.6 man hours for the uncrating, mounting and making all taps.

Another panel here was a combination with:

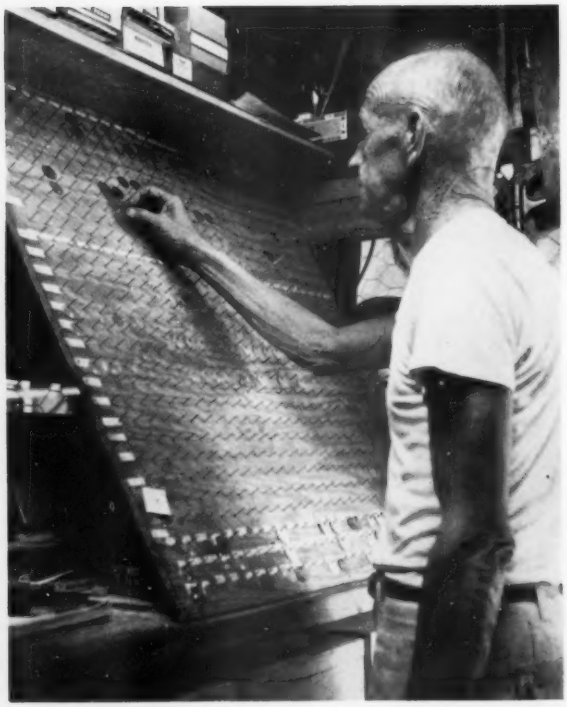
16 twenty amp single pole circuits
1 one hundred amp 3 pole
2 sixty amp three pole
2 thirty amp 3 pole

This was estimated at 27 man-hours.

Another panel on this job was a 42 circuit NTP 4-wire, and this bore an estimated time of 36.2 man-hours for uncrating, mounting and making taps.



Ward's workers meet periodically while a job is in process to discuss matters that help the estimating department to a realization of on-the-job progress. This reveals if jobs are progressing in labor and material consumption at the figures set in the estimate. Post-mortems after the job is completed uncover reasons for difficulties—if any.



One of the difficulties encountered in big jobs is that of keeping track of valuable power tools. Stockroom man Emmette Daniels designed this system of checks which points the finger at every tool, the job it's on, and the foreman to whom it was issued. Dark checks are foremen's; light ones denote hand tools in possession of journeymen.

A 16-circuit 4-wire panel required 13.1 man-hours, while a split bus panel with 6 circuits on a time switch and 12 circuits on regular bus was figured in the bid at 24.7 man-hours.

"These man-hours are derived from figures released by other contractors like Miller Electric of Jacksonville, but they're modified in terms of our own experience and knowledge of our men," said McMichael. "And we call in our foremen for consultation prior to bidding.

Consult foremen

"These men are invaluable as source of sound information. They're familiar with equipment; they know how long it takes to perform certain operations. What's more, they know their men and their capabilities and limitations. When we hold our post-mortems on a completed job, we run down discrepancies like more material used than we'd estimated on, and if the job was done differently than what had been originally planned—and why.

Man-hours come in for particular scrutiny; on a recent job the labor came to within a heartening ½ of 1 per cent of the total estimated hours.

Thus the inquest-after-the-job serves as a check on the estimator's efficiency.

But in the main, Ward's relies upon its own experience, despite references to data collected from NECA and collated from other sources like Sherlock's Blue Book. But they never guess-timate.

Otherwise things happen like the time a 48-inch fan had to be installed in a penthouse roof. It had been figured that 2 men could swing it, but because of the awkward location, it took a hired and expensive crane to help.

Hanging of light fixtures varies from .2 man-hours for simple porcelain keyless up to 4 man-hours for large recessed fluorescents like the 8 x 8 squares. There is no set estimating pattern on these except that to hang a 2 light 96-inch surface mounted one takes approximately 1 man-hour and this includes making the taps on the fixture. The variables here are the types of building construction and fixture fastenings.

"On conduit and wire, each and every run is taken off," said McMichael. "If Circuits #1 and #2 from the blue prints of the job show a length of 40 feet, that's put down on the estimating sheet, and these sheets are checked against the actual job sheets to see how closely they paralleled."

This checking reveals if the contractor made a little more money because some items fell in price, or his profit suffered a bit when materials cost more prior to the completion of the job. In either event, McMichael is equally concerned if the job consumed more or less material than estimated amounts, and the reason is hunted down. So far as costs of

(Continued on page 124)

'Year round' radiant heat promotion

Year round promotion through personal contact resulted in a 100 per cent increase last year in radiant heating panels installed by this Maryland firm.

By Francis Farmer, Vice-President, Jefco Corp., Bethesda, Md.

The portable radiant heat panel placed in a church library (left) and the porch enclosure remodeled into a bedroom to which radiant heat has been added (right) are among the many installations of supplementary and auxiliary heating obtained by Jefco Corp., Bethesda, Md., through its most effective means of selling radiant heat—personal contact.

◆ WE TALK RADIANT electric heating all year round! Whenever we can catch an ear willing to listen—whether it is an architect, builder, remodeling builder, homeowner, school, church—we talk radiant heat. It amazes even us sometimes how many installations may develop from one casual conversation, or from one installation others have witnessed. Let me give an example.

When our local church built an addition in remodeling the chapel to include two school rooms, and consulted us on heating in the interim before the main heating plant was put in, we talked up portable heating wall panels that are plugged in. Placing three heaters in each room, six in all, we realized during the ensuing months 12 different jobs in the residences of church members and teachers. People were pleased with the warmth, evenness of heat, safety and economy. As a matter of fact, after the main heating plan was put in, the library retained their heating panel, and even today I am still getting inquiries and jobs from it.

During 1956, we had some 100 individual installations in radiant heating, mostly in ceiling panels. In that third year of our promotion of radiant heating we had a 100 per cent gain over 1955. Our first year's efforts yielded 15 radiant heating panels sales.

Personal contact sells

By far the most effective means of selling radiant heat is through personal contact. Explaining in non-technical terms to a homeowner (preferably the woman) how different heating methods work, we look for the situation in a household where radiant heat will apply. This may be a porch remodeling into a closed-in room, a recreation room or attic not reached by the main heating plant, a bathroom where a panel of heat in the spring or fall weather when the household may not require over-all heat but may leave the bathroom chilly, a bedroom where protracted illness may require an additional source of heat, a workshop in occasional use in the basement, etc. Our chief source of installations is auxiliary heating—or heating used in conjunction with the regular heating plant.

When we explain the different forms of heat, we go into radiant, convection and forced air heating. We explain radiant heat in ceramic or glass panels that heat by contact. The rays are invisible, come from the wall, and as they contact rugs, walls, chairs, they build up a heat source. The air space through which they travel, we explain to the customer, is not heated. Objects, persons, absorb the rays, become warm. A person may be perfectly comfortable in a room at 67 degrees. We guarantee results. We assure prospects of comfort, safety, economy.

Prospect sources

Prospects are obtained from a number of sources. Many homeowners call us for the addition of new and extra electrical outlets. When we look into the situation in their homes, we point out how much more satisfactory radiant heating would be. The Electric Institute constantly receives inquiries regarding supplementary heating, and when they are in our area, refer the prospects to us. We list ourselves in the classified telephone directory as light, heat and power contractors.

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Packaged power plan brings dividends to Arkansas farms

When government restrictions on rice acreage caused power rates for irrigation to increase unduly because of demand features, Farmers Electric Co-op met the situation with a unique off-peak rate schedule and a promotion program which has now increased irrigation power sales even beyond the peak that had been reached before the restrictions became effective.

By Carl L. Cross, Manager, Farmers Electric Cooperative Corp., Newport, Ark.

◆ A "PACKAGED Power Plan" for off-peak electric rates, offered farmers in Jackson County, Arkansas last year to help relieve their economic problems, has met with enthusiastic acceptance.

The Farmers Electric Cooperative of Newport early in 1956 complied with the wishes of its farmer-members wanting a rate which would permit them to use electric power for irrigation of their row crops and not be penalized with demand charges when the pumps were not used regularly.

The cooperative, which depends upon irrigation for one-third of its total revenue, went all-out in its promotion of irrigation. The packaged deal offered members not only included the low-rate with no demand for which the members asked, but also, for low income and small farmers, a rental service for irrigation motors.

The no-demand rate utilizes off-peak power made possible by a high saturation of ranges in the cooperative area. By using automatic devices, irrigation pumps were shut down during cooking hours and service restored when this peak had passed. Records for 1955 show that the cooperative had 14,000,000 kwh that could have been sold at off-peak rates.

In 1954, the last year of unrestricted acreage for rice, the cooperative reached a peak in annual revenue with a total of $314,367.78. Of this amount, irrigation produced $98,878.94, with a maximum number of 143 wells connected during August. The total monthly billings for irrigation for the year was 618 for a total of 6,485,964 kilowatt hours.

A 25 per cent reduction in rice acreage was experienced by members in 1955. This caused much concern for those whose remaining acreage was small and who had originally purchased 40- and 50-horsepower motors to power their irrigation wells. Under the regular rate, for small acreage, the cost of irrigation per acre per season would have been prohibitive, since with the larger horsepower motors the load factor (or hours used per day) was decreased. The wells and

First of 66 off-peak irrigation installations on the cooperative line was on farm of P. E. Smith, near Newport. One pump alone serves all of Mr. Smith's irrigation needs on 160 acres. Water is pumped into fish pond before irrigating rice, cotton.

HIT THE JACKPOT IN FARMING!
BOINNG!
2 bales of cotton per acre
If You Are Suffering From Shortage of Acres—Try Irrigation
IT PAY$ TO IRRIGATE
AND REMEMBER, MOM—IT'S CHEAPER TO PUMP AT NIGHT!
Ask About "Off-Peak" Power—It's The Farmers Best Buy

Carl Cross, co-op manager, left, discusses new irrigation power schedule with P. E. Smith, Newport farmer. Mr. Smith's enthusiasm for the plan helped secure 65 additional off-peak utility customers, earlier informed of plan's availability by series of direct-mail promotional items, as shown above.

pumps were originally designed for larger acreage and it was impossible to reduce the horsepower without impairing the efficiency of the pump.

Many members were considering selling their electric motors and obtaining other means of powering their pumps. Although some did find other means of power, a majority advised that they would continue under the regular rate for the 1955 season, but would make changes in 1956 if our rate schedule was not revised.

As a result of the first acreage decrease in 1955, it was found that peak number of wells dropped to 130, with a total monthly billing of 508. Kilowatt hour consumption decreased to 3,806,880, and produced only $65,215.96 in revenue.

Late in 1955 the rice farmers were advised that their 1956 quota would be 25 per cent less than in 1955. This further reduction in acreage made our regular irrigation even less desirable for irrigation use.

It was obvious that an off-peak plan had to be developed quickly, as well as a promotional program to put the plan over to members.

Brochure gives facts

In a brochure, released early in 1956 by the cooperative, farmers were given pictorial facts of such a plan. They were encouraged to use irrigation on their reduced acreage and were shown how irrigation pumps could be used 12 months a year, with no demand charges, to increase annual income.

With this rate the cooperative supplemented its regular irrigation rate in an effort to provide electric power for all sizes of farming operations. Farmers with a large rice allotment continued to use the regular rate because of the larger requirements of water. Those whose acreage had been reduced to the extent that it was not economical to use existing 40- and 50-hp installations found that the off-peak rate enabled them to use their present equipment without increasing their annual cost per acre. Farmers who had too many acres for off-peak irrigation and not enough to justify the regular rate were shown the benefits of storage ponds for peak uses.

The cooperative is now confident that this off-peak rate is a boon to irrigation in Jackson County, since most farms in the area now utilize a water storage plan whereby cheap power is used the year round for pumping. Too, the cooperative has not overlooked the fact that even the rice farmers with large acreage allocations will eventually resort to reservoirs for their water supply and one pump in operation 12 months a year may

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These attractive markers identify residential building projects as adequately wired and lighted in accordance with the Light for Living program conducted by two southern utility companies.

Lighting advisors of both companies have used brightly-painted station wagons in making home calls for lighting demonstrations.

Cornice lighting makes rooms appear larger and more cheerful. Note how portable lamps supply the needed light at specific points.

Program

An effective lighting promotion program developed concurrently by a Mississippi and a Kansas utility company resulted in lighting load sales in 1956 of more than double 1955 sales.

◆ CONTRACTORS and distributors have expanded lighting equipment stocks, builders have sold new homes quicker, and kilowatt-hour sales by utility home lighting specialists have doubled during the second test year of the Light for Living programs initiated by Kansas Gas and Electric Company and Mississippi Power and Light Company.

These two companies have been testing a new approach to home lighting sales, called Light for Living, which serves to stimulate people interested in home building, home modernization, and home lighting equipment sales to profitable, coordinated action.

Both companies started test programs late in 1954 to find the best way to promote home lighting. Home lighting promotion, until then, lacked sparkle, did not appeal to customers, and generally was not as effective as in past years. These facts convinced both companies that an entirely new approach to home lighting sales was needed. The plan finally selected was originally developed by Ebasco Services, Inc., for the Large Lamp Department of General Electric Company.

Program emphasizes beauty

The program, broad in scope and designed to sell home lighting by "roomful" and "houseful," stressed beauty as well as proper levels of illumination for home seeing tasks. Such lighting accessories as dimmers, switches, controls, and wiring which lend flexibility to home lighting were tied-in to the program and promoted.

The companies' long-range objective is to light condition 50 per cent of homes in test areas over a 10-year period and, in doing so, to add approximately 1,000 kwh per

for increasing lighting sales

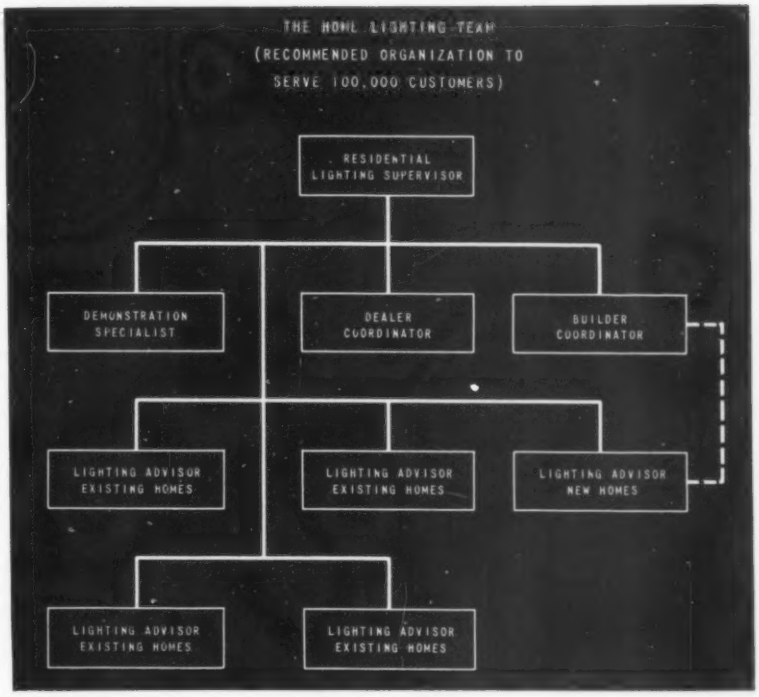
customer to residential load. Results during 1955 and 1956 indicate that these objectives can be attained.

While every residential customer is a prospect for home lighting, both companies have continued to concentrate on the middle 60 per cent group, measured roughly by family income. This group is said to be influenced by mass demonstrations and advertising more readily than the upper and lower 20 per cent groups. The top 20 per cent seeks out specialty merchandise and, it is said, requires an unjustifiable amount of selling time to be sold; the bottom 20 per cent has more sales resistance due to lower income. But the programs have not ignored any group altogether. Effort has been specifically alotted to the upper group where there was possibility of light conditioning results being publicized widely. The mass advertising approach has emphasized that good home lighting is not an expensive luxury with the objective that such approach, together with the strong influence of improved standards in the middle group, will carry over to produce indirect results among the lower group.

Spearheading promotion

Each utility's role has been to spearhead promotion. It enlists support and coordinates activities of all groups interested in home lighting, such as builders, lamp and fixture dealers, wiring contractors, architects, decorators, etc.

Home builders in both test areas are now using more valances, coves and fixtures, as well as service outlets in their new homes, increasing the connected lighting load by 1,000 to 1,200 watts per home in a majority of cases. Closet lights and twin garage lights are now common in both test areas, whereas a few years ago these were considered luxuries, available only in higher-priced homes. And outlets are being installed along living area walls at six-foot intervals. This gives homeowners flexibility in locating portable lamps and makes living space more useful.



Construction standards have been set up by each company to guide builders, and a certificate or plaque is awarded when a new home meets the prescribed standards. Builders have recognized the value of such standards in selling their homes. As a result, much interest in this program phase has been aroused and new home sales have been stimulated.

Pace-setting, custom-built homes by cooperative builders received a great deal of publicity during 1956 in test areas. Their value in the Light for Living campaign was considered so great, that both utility companies assigned lighting advisors to help builder-coordinators in this field. New designs, decorating methods, and lighting systems utilized in these homes today point the way to better living available in the mass market tomorrow.

Consumer demand grows

Customer contacts have increased to more than five calls per utility home lighting advisor per working day in 1956, causing greater impact at the consumer level. More than 800 rooms and 25 homes in the existing market were light conditioned last year, and over 4,000 feet of valance and 3,000 new fixtures added. These advisor contacts have had effect upon the lighting equipment market. Fixture distributors and lamp dealers report that people are demanding better quality and only that equipment which meets the utility company's light conditioning standards. A dealer in one area reported that there was no longer a market for poorly-constructed lamp shades. Another noted that were all his customers first to be contacted by lighting advisors, he could sell more and better fixtures.

These allies also reported that the unit volume of equipment sales during 1956 remained about equal to 1955, in spite of decline in home building in Jackson, Miss., and Wichita, Kansas. Measured in dollar volume, however, sales are up.

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Wholesalers air their problems

Seventh annual "Industry Day" meeting of the Southeastern Electrical Wholesalers Association provides a forum for discussion of the manufacturer-distributor relationship and the wholesaler's place in the distribution channels of the electrical industry.

SEWA President John W. Shealy, of Greenville, S. C., congratulates J. P. Hamblen, president, Southern Electric Supply Co., of Houston, who addressed the Industry Day Meeting on the subject, "Who's Going to Be the Middleman?"

◆ HARMONIOUS RELATIONSHIP between electrical equipment manufacturer and distributor is on the wane. It might, in fact, be doomed unless both seek to recognize each other's problems and mutually cooperate in their solution.

Such was the tenor of discussion running through the seventh "Industrial Day" meeting of the Southeastern Electrical Wholesalers Association held in Atlanta recently. Centered around a theme of "Let's Have Real Team-Work," the two-day SEWA session was by far its best-attended and most enthusiastically received to date.

Recognized experts in both the electrical equipment manufacturing and the wholesaling fields headed-up an excellent program, with several speakers laying verbal cards on the table, seeking common ground for continued understanding and cooperation between the groups.

Following a brief welcome address by SEWA President John W. Shealy, the meeting opened with a presentation on "Business Citizenship" by H. Neely Henry, executive vice-president, Alabama Power Co., Birmingham. Mr. Henry reiterated that a company . . . be it a manufacturer or a distributor . . . must, other than selling goods and services, identify itself with the long-range good of the country and with the general welfare of mankind. (Excerpts from Mr. Henry's talk appear elsewhere in this issue.)

Importance of "policy"

"Who's Got a Distributor Policy?" was the quetsion raised by W. H. Younger, eastern sales manager, Square D Company, Detroit. Mr. Younger related his own company's experience in policy evolution, and came up with the following suggestions and recommendations:

(1) Decide upon a basic philosophy of organization, what is to be accomplished, and then select a custodian to nurture it. The custodian should be a mature, "human" person who likes people and is conversant with and knows jargon of electrical distributors and manufacturers. Steer away from the "fire-ball" public relations individual who, through sheer aggressiveness, may "undo" good already accomplished.

Harold L. Cramer
Westinghouse Electric Corp., Pittsburgh

Robert E. Pequignot
Electromode Corporation Rochester, N. Y.

C. Fred Kreiser
Edwin L. Wiegand Co., Pittsburgh

J. Ben Carson
Kingsport Electric Co. Kingsport, Tenn.

at SEWA industry-day meeting

(2) Define the market and objectives and specify obligations involved between the distributor and manufacturer. The manufacturer, in any case, should create the market, while the distributor perforce must service it.

Major obligation of the manufacturer is to train the distributor's men, with the distributor necessarily cooperating in all ways in order that training may be facilitated.

(3) Stocking and inventory control must be a joint operation of the distributor and the manufacturer, so that the distributor maintains adequate local stock, while the manufacturer keeps sufficient headquarters stock in readiness. The manufacturer should help guide the distributor's ordering system, giving the latter suitable warning when obsolescent stock is to be discontinued.

(4) Sales promotion is a joint operation of the manufacturer and the distributor, with the former developing a national program solely to assist the latter on the local level. Most manufacturers are willing to assist local promotion campaigns up to a point, but are averse to "picking up the check." Distributors are at fault who expect such action.

Mr. Younger cautioned in his address that established policy be not so unbending that it lose the "human touch." He related an experience of his company in 1955 with a New England distributor whose stocks, all unpaid for, were destroyed in the winter flash floods.

"Sure, my company ordinarily demands 30-day payment," Mr. Younger emphasized, "but do you suppose that, in the case of this man, they could have done so and remained in that chap's good graces when his times improved? Black and white policies must sometimes be broken," he concluded.

SEWA Past-President J. Ben Carson, president, Kingsport Electric Co., Kingsport, Tenn., commended Mr. Younger's message and reiterated importance of policy establishment by all electrical distributors. He called on all Southeast wholesalers to activate their interest in the electrical industry by membership in both SEWA and NAED.

At the conclusion of the morning program, Thomas Preston, NAED public relations manager, New York, commended SEWA members for an "outstanding" program.

The afternoon session was opened by Harold L. Cramer, manager, Agency and Construction Sales Department, Westinghouse Electric Corp., Pittsburgh, who addressed the assembly on "The Value Added by Distribution." Mr. Cramer opined that both manufacturers and distributors must take forward steps to modernize and streamline their operations to meet growing market demands and changing market conditions. (Excerpts from Mr. Cramer's talk appear elsewhere in this issue.)

"Teamwork . . . Nonsense or Necessity?" was the talk given by R. C. Bennett, Jr., general vice-president of National Electric Products Corp., Pittsburgh. Mr. Bennett emphasized that efficient operations, alone, by manufacturers and distributor would achieve workable goals. (Excerpts from Mr. Bennett's talk appear elsewhere in this issue.)

That restriction of electrical equipment lines is wise as "just good economics," for the distributor was the idea of J. P. Hamblen, president, Southern Electrical Supply Co., Houston. In a talk, "Who's Going to be the Middleman?" Mr. Hamblen described in detail policies of his organization which have proved workable, and displayed promotional materials which have been particularly successful.

R. C. Bennett, Jr.
National Electric Products Corp., Pittsburgh

W. H. Younger
Square D Company, Detroit

H. Neely Henry
Alabama Power Co., Birmingham

Thomas F. Preston
NAED Public Relations Director, New York

Cecil J. Matthews, of Matthews Electric Supply Co., Birmingham, has been installed as president of SEWA for 1957, with Russell S. Hughes, of Hughes Supply, Inc., Orlando, Fla., as vice-president. With them here are several of the board of governors for 1956 and 1957. Seated, left to right, Mr. Hughes; Mr. Matthews; Jack M. Passailaigue, Columbus, Ga., 1957 board; and John W. Shealy, Greenville, S. C., who served as president of SEWA during 1956. Standing, left to right, Joe H. McMullan, Dothan, Ala., 1957 board; Leslie C. Crabtree, Tallahassee, Fla., 1956 board; Fred H. Dendy, of Atlanta, treasurer; and Dempsey S. Brown, Macon, Ga., 1956 board.

Left to right, Humphrey G. Black, Greenville, S. C., 1957 board; Joe J. Perry, Sr., Atlanta, 1957 board; and M. L. "Tiny" Tice, Atlanta, executive vice-president. Mr. Perry was SEWA's first president, and Mr. Tice has directed the affairs of the association since it was organized some seven years ago.

The concluding day's program was devoted to the subject of electric heating and its potential to the Southeastern electrical distributor.

"Electric Heating . . . It's Getting Hotter" was a slide presentation by C. Fred Kreiser, general sales manager, Edwin L. Wiegand Co., Pittsburgh. Mr. Kreiser stated that the profit opportunity, alone, would be sufficient to make the distributor sit up and take notice. (Excerpts from Mr. Kreiser's talk appear elsewhere in this issue.)

Robert E. Pequignot, vice-president, Electromode Corp., Rochester, spoke on "Electric Heating . . . A Real Profit-Maker for the Electrical Wholesaler." (Excerpts from Mr. Pequignot's talk appear elsewhere in this issue.)

Electric heating forum

A general floor discussion on electric heating followed the addresses of Messrs. Kreiser and Pequignot. Both member and guest participation was enthusiastic, with SEWA President J. W. Shealy moderating the discussion.

In their order of presentation, excerpts from the discussion follow (Editors note—although presented in conversational style, the discussion has been essentially condensed and does not constitute a precise verbatim report):

President Shealy: I recently had occasion to question an electric heating equipment salesman who had called at my office as to necessary procedures involved to equip the room in which we were sitting. The man appeared to know nothing whatsoever about electric heating installation, and remarked that he would have to refer to his catalogs to determine if the information I desired was available. It wasn't, and I have yet to receive it from him. If this salesman is an example of those selling electric heating today, I predict a dire future for it.

Robert E. Pequignot (Electromode): This business of heating electrically is not as mysterious as it sounds, nor need it be complicated. Basic requirement involved is the understanding of heat-loss principles with reference to cubic feet of space to be heated and outside walls and windows in the structure to be considered. There is a manual on these principles available through the National Electrical Manufacturers Association which, in addition, offers basic calculation instructions.

W. Harold Butt (Butt's Electrical Supply Co.): Can anyone tell me as to the best method to determine necessary kw to electrically heat a large house.

Mr. Pequignot: Look at builders floor plans, note windows, outside walls, etc., and then size load down to the exact requirements.

William G. Raoul (Cavalier): Referring to President Shealy's remarks, certainly no salesman should take on a line of heating equipment w i t h o u t thorough training from the manufacturer. The latter, in fact, should demand that its representatives be properly trained. As an NEMA officer, I am within my authority to suggest organization of a basic training school in electrical concepts for electrical distributors who may be interested.

C. Fred Kreiser (Wiegand): May I again emphasize the importance of equipping a house with full kw capacity for electric heating. Another consideration in the matter is that ordinary electrical appliances—electric lights, refrigera-

tors, stoves and TV sets—put out a traceable amount of heat during peak periods, all of which tends to add to the heating factor. In the house of the future, I fully believe that during heating months, occupants will never extinguish lights and other electrical appliances, considering the value of heat received.

Harold Wilde (Wesix Electric Heater Co.): It is obvious that electric heating throughout the country has a promising future. And it is vital that its distribution be kept in the hands of the electrical wholesaler. I think the biggest deterrent to distributor's acceptance of electric heating is his fear of knowing too little about it. Therefore, I say that it is up to manufacturers to train the wholesaler and his organization.

L. H. Edenfield (Stokes Electric Co.): What can be done to get electric heating equipment back on a quality basis? We are all aware that inferior equipment has discouraged many of us from further investigation of the field.

Mr. Pequignot: Frankly, that question stumps me. There will be price cutters, of course, in every field. Nevertheless, NEMA today is doing much to uphold equipment standards.

Frank Bell (Electrical South): It strikes me that if electrical manufacturers will quit fighting among themselves over this issue and concentrate on convincing public utilities about its excellent future, they will solve their problem and benefit thereby.

Melvin Wessell (Cavalier): If I may further answer Mr. Edenfield, it is the basic principle of NEMA's Electrical Appliance and Heating Section to clean up the ranks by offering basic information on approved items. I suggest that electrical wholesalers seek out acceptable equipment manufacturers. Determine if they're in business for the future, rather than on a "fly-by-night" basis. Everyone should check carefully and think twice before aligning himself with "just any" manufacturer.

J. Ben Carson (Kingsport Electric Co.): I think that we wholesalers must strive to stock top-quality equipment, and good manufacturers are always available, if we'll take the trouble to find them. It has been my experience in electrical heating, that no certain type heater will meet every heating need. For instance, there are places where a fan-type heater can do a much better job than a radiant heater. Experience alone will award this knowledge to the wholesaler.

B. F. Buchan (Southern States Supply): It is my observation that we won't put over electric heating until we can stop the utilities and electrical contractors from unjustifiably "knocking" it. The job is going to fall to us, so we might as well face-up to the responsibility.

A special feature of the SEWA meeting was a "Southern breakfast" with SEWA members as the guests of the Southeastern Electrical Manufacturers' Representatives Club. Richard H. Osgood, recently elected president of SEMRC, presided over the breakfast session.

Teamwork—nonsense or necessity?

By R. C. Bennett, Jr., General Vice-President, National Electric Products Corp., Pittsburgh, Pa.

◆ PROFITS in the electrical industry have been interestingly varied. From 1953 (a peace time year) through 1956, volume of sales and electrical demand have hit all time peaks in both manufacturing and distribution. The great future outlined in all forecasts for the electrical industry again foretells greater volume of sales. All this sounds fine.

However, the spotty profit picture in the industry since 1953 should not give the industry the same tingle of anticipation that we feel when we think of past and future volume increases. Some branches of both the distributing and manufacturing segments of the industry have shown nicely improved profits, but the thought-provoking fact is that many, many have not—and this is in a time of great demand and great prosperity.

It is obvious that individually we must manage our own companies at an ever increasing rate of efficiency. More important, we must have industry leadership to manage the industry at an accelerated management pace. Efficiency of operations, efficiency of service, efficiency of commercial practice, and above all efficiency in our intra-industry contacts will accomplish our proper goals.

Economics prevails

The intra-industry contact that I will discuss is that of manufacturers and the distributor. We have heard it said in many ways but the real reason for a manufacturer—distributor relationship is that many of us believe that we can get goods from the factory to the consumer more efficiently and at lower cost by selling through distributors. There is no other good reason for this relationship.

Most of us in this room are dedicated to the theory of distribution through distributors, and we had better become more dedicated if we are going to gamble on this method for the growth of our businesses.

Today there is the current fact of competition to the manufacturer-distributor method of doing business. Many manufacturers who give lip service to a distributor policy gladly sell direct to original equipment manufacturers. This is your business that is being threatened. To hastily explain that I do not stand in a glass house, I might state that our company sells to many OEM accounts, including one that runs about $2,000,000 per year—but all through distributors.

As a manufacturer I am concerned, and if I were a distributor I would be mightily concerned, at the threat of further direct sales in the industry. These further threats are in several categories.

Warehouse expansions

First, there are the manufacturer's warehouse expansions. What distributor functions have they, or will they take over? This is your business and you should think about it. We have no quarrel with those manufacturers whose warehouses are there to service their specified distributors as extensions of their factory. Again I hasten to mention the glass house and state that our company has the same total number of factory warehouses that we had 20 years ago.

The second threat is the manufacturer's warehouse or the agent's warehouse in combination with the broker jobber. This is not distribution as we cherish it but a job lot jobbing process. What is your investment in warehouses, inventory, personnel, etc.? This is your business and it's being threatened. You should do something about it.

We should all search for the answer as to what some manufacturers are thinking about in their ivory towers as to long-range plans for getting goods to the market by short cut—selling direct. What can be done to compete at a profit against the manufacturer—broker—jobber—direct shipment combine? This is your business and you should find the answer. . . .

Is teamwork nonsense or necessity? As far as our electrical splinter groups are concerned, it is nonsense. Because of their independent direct of semi-independent or semi-direct action, they prove it. But amongst the rest of us, the group I will refer to in the balance of this discussion as the "team" are those who believe in the manufacturer-distributor relationship. Teamwork, unfortunately, even though it is described as necessity, is often proved nonsense by our very actions.

How can we prove what we say by action? We say teamwork is necessity—not nonsense. We don't support this well enough to even survive long-range. How can the team not only survive but win—take the offensive and do it profitably?

Selective distribution

The answer is distribution by selection or selective distribution.

What is selective distribution? We hear the phrase often. From National Electric's standpoint, the first step is to have each of our products which should be stocked represented in each trade area in distributor stocks and with distributor sales time. This puts an obligation on us to support our distributors, do missionary work for them, and through sales meetings help train their salesmen on our products. In our lines and in our case, this means we do not sell all distributors, nor do we wish to.

Admittedly, the degree of selectivity will vary between lines of various manufacturers. Some lines lend themselves to being sold in large quantities and through fewer distributors than others. However, the basic principal is the same—obtaining a percentage of distributor's warehouse space and distributor's salesman's time by trade area. This policy essentially makes the manufacturer commit himself to a way of doing business and to a specific group of distributors through whom he will build his sales by working with them as a team. This is in opposition to the manufacturers who sell anybody at any price at any time.

Distributors should decide which suppliers they wish to support and they should demonstrate this support by stocking those lines. They should make this decision and then stick with them and do their part to build the competitive team. There is nothing more unsettling for both manufacturer and distributor than to never know who your customer or supplier is from day to day. Make your choice, and then fight the competitive battles side by side.

These teams, by working together, will be more efficient and will compete more effectively.

The value added by distribution

By Harold L. Cramer, Manager, Agency & Construction Sales Dept., Westinghouse Electric Corp., Pittsburgh, Pa.

◆ CLOSER COOPERATION between distributor and manufacturer must be based upon an understanding of our mutual problems. So first . . . let's take a look at some of our problems.

I am told that when distributors speak about manufacturers . . . and not only behind closed doors . . . they have much to discuss about such problems as the manufacturer's lack of appreciation of the wholesaler's warehousing services, or the manufacturer's policies regarding compensation for full-functioning wholesalers compared with brokerage operators.

And, of far greater impact, I am told that distributors deplore the profit squeeze which they have been experiencing in recent years.

When manufacturers speak to other manufacturers at trade association meetings, it is quite evident that they are greatly concerned about distribution. Production seems to go merrily on its way; therefore, their concern generally finds expression in a discussion of marketing inadequacies or in bewailing an alarmingly high "distribution expense."

Yes, both distributors and manufacturers have their problems. I am afraid, though, that sounding off about distributors or about manufacturers has become a favorite bid for headlines by folks who should know better. There are the manufacturers who claim that distributors may be good for the other fellow's products, but that "they don't do me any good."

Then there are the distributors who view with alarm the manufacturers efforts to get someone to really stock and sell his product, even if this someone has to be the manufacturer.

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selves by your every day actions. The efforts of your association to find the answers to question which, at times, baffle manufacturers, will, I am sure, furnish the answers to those who question the value added by distribution.

Then, why am I, a manufacturer, on your program if I imply that I am going to leave the burden of proof to you, to your association, and to its capable officers?

I'm here to contribute a single thought, which, if applied by all distributors, would do much to show manufacturers how the distributor will maintain his position of preeminence in the field of distribution.

Here is the one thought that I want to leave with you: the manufacturer's need for sales volume and customer coverage can go hand-in-hand with the distributor's need for profits. . . .

Problem of margin

One other thing seems clear to me . . . that the distributor can permit only one man to set his margins . . . that is himself. I think he must shun, as the kiss of death, any favor from the manufacturer which will result in eliminating any of the distributor's essential functions. It's dangerous to him!

This may sound inconsistent with the distributor's complaint of profit squeeze, for no matter how you look at it, the net effect of maintaining the profit spread while eliminating functions is extra margin handed to the distributor by the manufacturer. And if the manufacturer can give it, he can take it away! (Parenthetically, this may be a partial explanation of your profit problem.)

On the other hand, the distributor should not permit the customer to set his margins. What margin the customer gives, he can take away. I have heard of a distributor operation where a large buyer comes in once a year to sign up. He sits down and says, "All right, I'll let you have 3 per cent on these widgets, 5 per cent on these, 7 on these," and so forth. Gentlemen, I say that's dangerous.

Margin is earned

Real margin, like authority, is not something somebody gives you. It's something you earn. And you earn it only when you perform all the functions of a distributor.

In short, the customer must yield you the margin because he can't get the same quality, application knowledge, or service elsewhere. The manufacturer must concede you the margin because he can't get the same coverage elsewhere; because you hold in your hand the market.

When you stand on that ground, you are absolutely solid. In periods of short supply, you can earn your margin from the customer by your ability to procure the goods. In long supply, you earn your margin from the manufacturer by your ability to procure the market. And at all times, you render valuable services to both the manufacturer and the customer.

I see equally clearly that distribution services must be performed at a margin set by the distributor. For if he cuts into the established margin, every penny of which he needs, he will delete services, services which the distant manufacturer cannot furnish as efficiently, services which both the manufacturer and customer are dependent upon you, the distributor, to perform.

Now the market is large and growing. And again, without being adamant, I cannot see any other way for distributors to command their own margins, and in fact, their own destinies, than by retaining the ability to deliver a share of this larger market.

All I'm saying is that the sometimes popular cry of longer margins, when at the expense of volume, goes against nature and the very definition of the word "distributor." The trouble, it seems to me, is that it will not bear carrying it out to its ultimate. The man who keeps the longest margin on the smallest volume is not the richest. Even a 50 per cent markup on zero is zero. . . .

Electric heat–a real profit maker

By Robert E. Pequignot, Vice-President, Electromode Corp., Rochester, N. Y.

◆ THE ONE BIG MARKET for complete electric heating of homes began first to grow in the area served by the Tennessee Valley Authority. It seemed perfectly natural that the sale of electric space heaters there was through the electrical wholesaler and the installing electrical contractor. That established a pattern of distribution adopted by our company and almost every other manufacturer of electric space heaters in the business today.

Now there are some situations popping up here and there throughout the country which might indicate that the electrical wholesaler can lose his big opportunity in this rapidly expanding market if he just sits complacently by and does nothing about it. I want to assure you that I'm not tossing that out as a threat, but simply to warn that if the electrical wholesaler is not alert to the profit making possibilities of selling electric space heating, that others are and will be doing something about it. Our company is thoroughly convinced that the business belongs in the electrical wholesaler and installing electrical contractor trade channels. . .

The local utility companies are ready to cooperate in almost every area. We as manufacturers and you as electrical distributors now have a greater responsibility to come up with a program to sell and install electric space heating than ever before. . .

Profit potential

The electrical wholesaler has in his hands today the greatest profit maker ever in his experience. Profit not only in selling the electric space heating equipment itself, but added profit in additional wiring, conduit, thermostats, larger entrance service, etc.

It is a proved fact brought out by actual experience records in those areas of the country where electric space heating has been widely accepted, that the electrically heated home is also a greater user of electric power for other so called "normal" purposes. It seems that such a homeowner just naturally thinks "electrically" in everything he purchases and operates.

Electric space heating has a promotional effect on the use of all appliances not only for the

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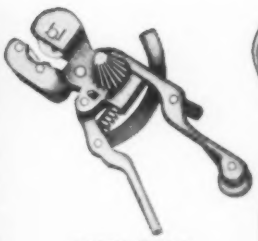

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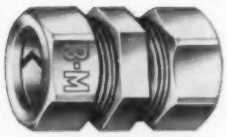

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SIZES
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electric heat consumer but also for his neighbors. Tabulations by electric power companies of uses by appliance groups show the summer kwhr use of electric heating consumers to be approximately twice that of other consumers on the system. . .

In some areas, where due to comparatively high electric rates, cold climate, or lack of interest on the part of the local electrical wholesaler, specialty distributors are in operation selling electric heaters, insulation, storm doors and windows. In some cases, these specialty distributors set up dealers who might be electrical contractors, heating and ventilating men, etc. I'll be frank to admit that in some areas they have done a pretty good job and are looked on with favor by some local electric utility companies. . .

We believe the job can be done better by the electrical wholesaler. Our own company can show you many successful and profitable electrical wholesalers handling electric heating all over the country. I believe I would be safe in saying that most of the electrical wholesalers in this room now sell electric space heating in some degree. Some perhaps may be enjoying good profits, others might look on the business with rather a jaundiced eye because of some price cutting experience in certain areas. Keep in mind that there is a very big difference in handling just a few small portable heaters and really being in the electric space heating business.

How to get started

It doesn't take a big investment to get started; it isn't necessarily the amount of heater stock you have in your warehouse. More important is the training and attitude of your sales personnel and your entire organization.

Perhaps the time will come when electric power companies everywhere will assume the responsibility of engineering heating jobs and educating the installing electrical contractors. In some areas, that is being done now. . .

A very good and inexpensive way to get started is to sell electric heating for auxiliary or supplemental use. By that, I mean heaters for the bath room; game room in the basement; attic bedroom conversion; lake cottage, and many other such locations.

For these, no particular amount of engineering is required and a comparatively high power rate is not an unsurmountable obstacle.

Some successful electrical wholesalers in electrical heating have started by making one man in their organization the "heating specialist." This individual gets a thorough training in the product, how to estimate heater sizes, and costs of operation. He might help to conduct sales meetings for electrical contractors, work with the local electric utility and call on architects and builders. One of the most important things is to sell yourself on the future of electric heating.

We urge all of you to take advantage of this growing opportunity now. Let's keep electric space heating where it belongs—in the electrical wholesaler trade channels.

Electric heating–it's getting hotter

By C. Fred Kreiser, General Sales Manager, Edwin L. Wiegand Co., Pittsburgh, Pa.

◆ As one manufacturer of resistance heating equipment, let me give you my ideas of a minimum distributor program on electric heating:

Distributor attitude

After looking into the sales and profit possibilities, decide that you are going to become Mr. Electrical Distributor in your territory—for the field is undoubtedly wide open. Become enthusiastic about electric heating and carry your enthusiasm and selling story to prospects everywhere.

Noting that this is to become a huge market, decide that you are making an investment in the future—that electrical heating is electrical work calling for regular electrical distributors in the marketing chain.

To keep these electrical distribution channels free of specialty distributors and exclusive heating dealers, that would otherwise be resorted to by manufacturers out of necessity, decide to act before the door is locked. Do not lose this sales opportunity by default.

While electric home heating is somewhat of a luxury today, remember that the American people won't tolerate a luxury—they'll make it a necessity.

Selling quality

Seek out manufacturers' lines that represent real quality—for it is only quality that succeeds in the long run. It is only quality that is sold to stay sold, without need for frequent call-backs, without expensive service, and in the interest of providing good will in the long run. Think quality; stress quality; believe in quality; for it is quality that survives competition, depression, and time.

As fortune would have it, many of the quality products that produce genuine heating comfort, also produce a proper profit for the distributors. A product like the baseboard heater, for example, doesn't yield the lion's share of the profit to the electrical contractor, with the negligible profit on a small dollar sale for the distributor.

Remember, that you will not do a favor for the home owner, not a selling job for yourself, when you try to sell the most kw for the fewest dollars. Electric heating can produce the greatest comfort ever obtained by the American public—and it is Cadillac quality at the price of the Pontiac. For electric heating can do jobs that just can't be done with any other fuel—as in the case of the electric blanket.

Sales training

Train your own salesmen on the product advantages. Sponsor training meetings, possibly in cooperation with utility companies, to train electrical contractors, on such basics as:

a. The calculating of heating requirements.

b. The estimating, honestly, of reliable operating costs and installed costs.

c. The value and nature of insulation.

d. The selection of equipment and controllers—and the advantages of one product over another.

e. To "sell up"—to not overlook prospects—to take time to learn this new line.

f. To use supplementary heat-

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ing as a stepping stone to the fully heated home.

A heating specialist makes you the authority in this new field. Contractors need this guidance during these early days of electric heating—for a bad electrical installation by the contractor reflects on the distributor. A specialist has the technical knowledge on the product and installation hints that are a guide to installing economy. With the valuable information obtainable now from the manufacturer, NEMA, and others, the training of the distributor specialist is a minor chore.

Display and promotion

As Woolworth said "A product well displayed is half sold"—and products for a new market need greater display than accepted appliances, if they are to prosper.

So there it is—as one manufacturer sees it. Electric heating, the pint-sized market today that can become the top residential item tomorrow—the market tailored beautifully for the electrical distributor, if he can get as hot about it as the product itself. Yessir, electric heating is hot today—but it is certainly the hottest item in the foreseeable future—thanks to that terrific product, electricity!

The need for business citizenship

By H. Neely Henry, Executive Vice-President, Alabama Power Co., Birmingham, Ala.

◆ IN VIEW of the fact that the American Capitalistic system has within the relatively short term of 181 years given its people the best of everything on this earth, it is unbelievable that there are many who do not believe in its virtues.

Through an enviable combination of initiative, energy, courage and foresight, the American businessman has pushed the economic levels of this country up, up, and up,—beyond anything the world has ever seen or dreamed of before. All the comforts, conveniences, luxuries and wealth of necessities we enjoy today, we owe to American business's ability to produce more at less cost, and to find the far-flung markets for their products. . .

One look at today's newspapers, magazines and books, one day's listenings to the radio, even a casual survey of the economic, social and political trends in this country, and for that matter throughout the world, gives businessmen cause for deep concern.

What the public thinks

It is my pleasure to be associated in a small way with the Junior Achievement movement and through the efforts of that group, recently, a poll was taken in 13 high schools in a typical industrial community with the following results. Of the 1443 students questioned, 56 per cent said that owners get too much as compared with employees; 56 per cent favored price controls over competition; 66 per cent said the most practical way for workers to raise their standards of living was "To get more of the company's money." Only 34 per cent chose the answer "produce more." 54 per cent believed that "the fairest kind of economic system is one which takes from each according to his ability and gives to each according to his needs."

When asked, "Who has done most to improve living standards in this country?" only 16 per cent chose "business management"; 76 per cent believed that owners derived the greatest benefit from mechanization or increased output due to new machinery.

That type of thinking may have evolved because of lethargy on the part of the businessman.

Let us remember that the job of selling our goods and services and the job of making friends are related, but certainly not one and the same. Most of you, I am sure, feel that you run your business for the best interests of your stockholders, of your employees and your customers, but apparently that is not enough. Is it being run in the public interest? Are you doing your share to convince the public that businessmen, too, deserve a small share of the place in the sun?

The businessman is traditionally a mighty poor politician. He doesn't understand politics. In fact, he doesn't really know very much about government, and as a result he loses nearly every round in the political arena.

Most of the socialistic programs which now plague American businessmen might have been avoided if the issues had been recognized and dealt with intelligently, as social and political problems, in the same manner that business problems are analyzed and solved. . .

An important goal

One important goal of the businessman is to have his business recognized as a safe place in which to invest money. To be recognized, the company must earn a profit through its operations. A reasonable profit is essential to the new investments that provide more jobs in an expanding economy. This is elementary fact, and yet our profit system is under trial today in the court of public opinion. A large section of the public apparently does not know that only a profitable business can continue to serve the public adequately, and to pay its just share of the taxes; and that only a profitable business can continue to employ workers and offer them job security and opportunity for advancement.

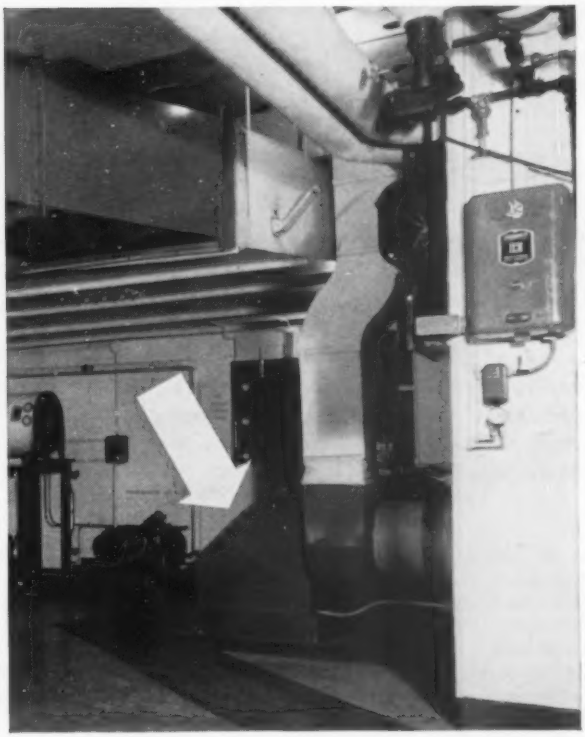
Many sincere people, these days, think it is wicked and anti-social for a business to make a profit. They do not understand, unfortunately, that profit in business is made through the fair exchange of goods and services. They do not understand that this profit is indispensable as incentive to enterprise and as a source of savings for research, for new machinery, tools and plants. Under our system, only the business which makes a profit, makes a contribution. But that fact is not widely known, and it presents one of the real challenges to today's businessman.

The challenge to the businessman of providing understanding of business operations is inescapable. What a wonderful thing it would be if each of us could straighten out the thinking of just one boy or girl, man or woman, who is confused by the twisted and ensnaring ideologies of the world, and who is uninformed or misinformed about our economic system and its achievements. . .

Good public relations must be

(Continued on page 122)

FROM TELEPHONE BOOTHS . . . TO INDUSTRIAL PLANTS



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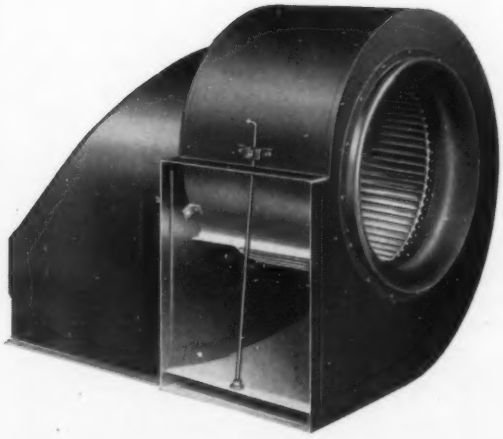

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Know the law

by Arthur L. H. Street

Power of municipalities to regulate installations

A recent decision of a California District Court will be of interest to contractors and inspectors elsewhere. Because no peculiar statutory provisions are involved, the decision can be used in courts of any state as persuasive reason why similar laws and ordinances should be declared invalid

◆ WHERE an electrical contractor has been licensed by the State, after examination as to his qualifications, can a city require him to secure a license from it, before he can engage in business there?

Can a municipality delegate to its electrical inspector power to make rules governing electrical installations?

Can a municipal ordinance validly require that installations shall conform to approved standards of safety without specifying what those standards are?

Can it require that conduits and fittings installed on building exteriors be listed and approved by a recognized testing laboratory as being rainproof?

Can it require that grounds on dwelling units be armour protected or open as required by the National Electrical Code, and that metering equipment conform to requirements of the electric utility that serves the property?

All of these questions were answered "no" by the California District Court of Appeal, Second District (Los Angeles) in the case of Agnew v. City of Culver City, 304 Pac. 2d 788, decided December 21, 1956.

The decision may be read with interest by electrical contractors throughout the country because the legal points decided involve fundamental and constitutional limitations on the power of a city or state legislative body to delegate to administrative officials the right to declare what shall be unlawful. The opinion makes numerous references to decisions of the appellate courts of different states involving similar questions.

As will be seen below, the California court decided that certain provisions of an ordinance were valid as giving a city inspector administrative, not legislative powers.

Electrical Contractor Agnew sued to secure a court decision as to the validity of an ordinance of defendant city, providing for the licensing of contractors and regulating electrical installations. As noted above, the principal questions involved were decided adversely to the city.

Conflicting legislation

The court fully recognized that a city ordinance may regulate the quality and character of electrical installations in respects not covered by state regulations. But the State having licensed a contractor to pursue his business anywhere in the state, a city could not impose independent licensing requirements. (This does not necessarily mean that contractors, doctors, lawyers, and others licensed by the State cannot be subjected to occupational taxes for municipal *revenue* purposes.) Here the ordinance purported to require a contractor to submit to an examination and obtain a certificate of competency from the municipal building department. The court said that that was an unnecessary and unreasonable requirement because the state license established the contractor's qualifications.

The court knocked out the provisions of the ordinance quoted below on the ground that they delegated legislative power to the city inspector, and to the framers of the National Electrical Code and the various bureaus and associations:

"In cases where the rapid development in the application and uses of electricity or new and special or unusual methods of building construction, create problems or conditions which are not clearly contemplated in the making of this Ordinance and make literal application of the rule or rules impracticable, the Electrical Inspector is hereby empowered to make interpretations in the form of his own rules wherever there is a question as to motive or method or manner in which material shall be installed."

" . . . where no specific type or class of material, or no specific standards of installation are prescribed by the Electrical Safety Orders or by this Ordinance, conformity with the regulations as laid down in the National Electrical Code, as approved by the American Standards Association, shall be prima facie evidence of conformity with approved standards for safety to life and property."

" . . . All electrical materials, devices, appliances, fittings and equipment installed or used in the above described territory shall be in conformity with the provisions of this Ordinance, the Electrical Safety Orders of the State of California, and with approved standards for safety to life and property. Listing or labeling as conforming to the standards of Underwriters' Laboratories, Inc., as approved by the United States Bureau of Mines, the American Standards Association, the United States Bureau of Standards, or other similar institutions of recognized standing, shall be prima facie evidence of conformity with approved standards for safety to life and property."

" . . . Every service shall be installed in rigid metal raceway and in accordance with rules provided for herein, and all service equipment conduits and fittings in-

Warranty and Protection Plan
TEN YEARS
To the Owner
The W. L. Jackson Mfg. Co., Inc., warrants to the original
described on the attached card of this certificate to be free
or workmanship under normal use and service. The corpo
this warranty shall be limited to repairing or replacing
equipment that the dealer or corporation's duly appointed
corporation's satisfaction, to be thus defective for a period
date of original installation, provided proper evidence of su
at the factory on the attached return card.
This guarantee shall not be effective:

Jackson's Warranty

is for the consumer and you!

JACKSON knows that a warranty is just as important to you as it is to the consumer! When you stock the JACKSON line, you are the W. L. Jackson Manufacturing Company as far as your customer is concerned!

By giving a warranty with every JACKSON Water Heater and sticking by it, JACKSON protects your sales. A satisfied customer will give you priceless word-of-mouth advertising—channeling present and *future* sales your way.

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stalled on the exterior of any building shall be listed and approved by a recognized testing laboratory as raintight."

" . . . One and two family service grounds may be armour protected . . . or open type . . . installed as required by the National Electrical Code. (Note: Install metering equipment as required by the Electrical Serving Utility.)"

" . . . Each fluorescent fixture, mercury vapor fixture or high voltage gas tube light or sign shall . . . have Underwriters' Laboratory Label or recognized testing laboratory label."

After reviewing the law laid down in appellate court decisions of several states, the California court said of the ordinance provisions above quoted:

The court's reasoning

"They constitute an unlawful delegation of legislative power. They are vague, indefinite and uncertain. They leave it entirely to the opinion of the persons who formulate the National Electrical Code, to various private and public bodies, and to the license inspector to determine the law governing the character and quality of various electrical installations, and confer on them the power to

(Continued on page 121)

Baseboard wiring system

◆ A NEW PRODUCT that may spark one of the most startling revolutions in electric wiring for both residences and commercial buildings has just been announced by the National Electric Products Corp., of Pittsburgh.

It's Baseduct—a new, complete electric wiring system at the baseboard level where it is most convenient and yet least conspicuous. It was introduced to the industry for the first time at the Home Builders' Show in Chicago recently.

"We believe Baseduct is more than just a new product," W. W. Brewer, manager for raceway and wireway sales said today. "Baseduct may certainly have far reaching effects on more than one front. Baseduct is a ready-made answer to modernizing existing structures where 'Housepower' has long been sub-standard. It will also cause prefab home manufacturers to take a new look at what electrical features they may be able to provide in their housing package."

Mr. Brewer added that Baseduct is designed to handle household electrical requirements which are now as much as five years in the future. As an example, he cited color TV which will be as common in the future as black and white today. "This will require a 'private' circuit for top performance," he said. A Baseduct installation put in today will handle that future requirement.

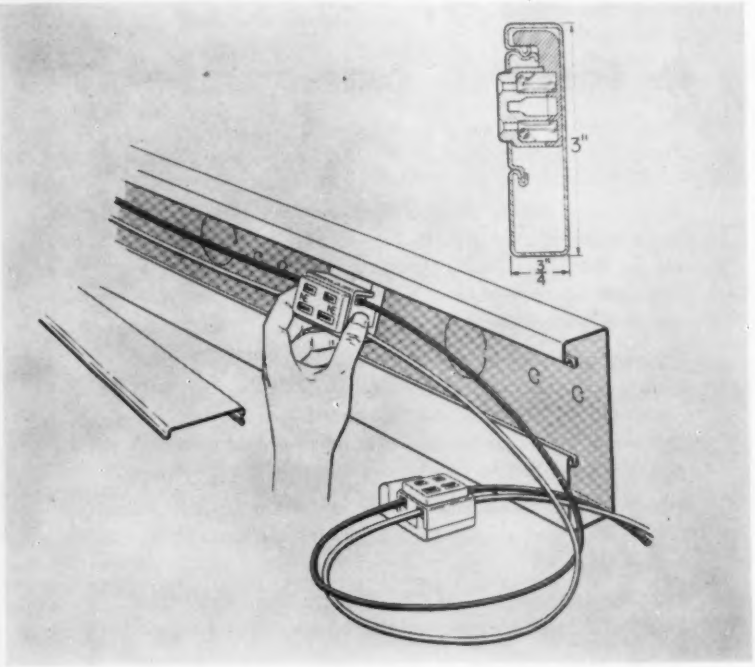
There are several inherent advantages to Baseduct. In re-wiring masonry structures, for instance, where wires cannot be hidden inside walls, Baseduct is a speedy and economic answer to the problem.

On new commercial or residential construction and especially prefabricated housing, Baseduct, because of its ease of installation, good looks, utility and relatively low cost may prove to be an innovation worth waiting for, Mr. Brewer suggested.

This unique baseboard wiring system is installed directly on the floor and requires no footers, trim, nor capping of any kind. To effect reduced installation time and expense only three fittings are required to mount the Baseduct system: an end blank, a combination internal and external elbow for corner areas, and a standard coupling.

Baseduct is available in five-foot lengths, with duplex receptacles on 30 or 60 inch centers. Over-all dimensions are three inches high and ¾-inch wide. Receptacles used within the system are preassembled to the wiring harness at the factory. They are held in place within the duct with-

(Continued on page 123)

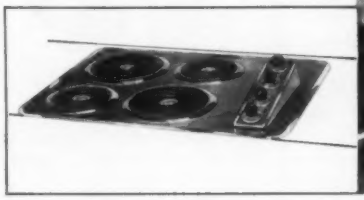


Baseduct—a modern electric wiring system at the baseboard level—is as easy to mount as the preassembled wiring harness is to install. One electrician, working alone, is reported able to handle the complete installation of the system. Only three inches high and extending just ¾-inch from the wall, Baseduct is a metal panel finished in satin gray. It sits directly on the floor against the wall, with duplex receptacles provided every 30 to 60 inches.

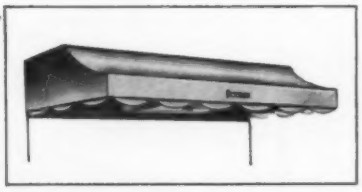
4 Ways to Profit with··· PREWAY

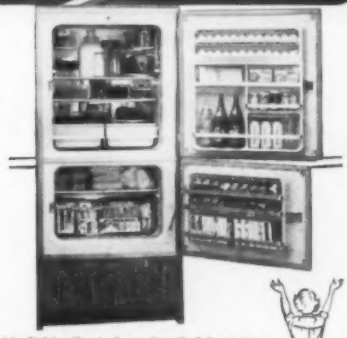
PREWAY'S pace-making built-in Refrigerator-Freezer has all the automatic convenience features your customer wants to save her work and trouble, plus the engineered dependability you demand to back up your good name in any built-in appliance. PREWAY'S easier installation provides great savings in time and labor . . . comes to you as a package unit that slides right into place. It needs no special framing, no kits, no compartment built for the compressor! Investigate this most advanced unit that fits into only 32½ inches of floor space and is available in coppertone, stainless steel, or flat finish so as to match any kitchen decor.

PREWAY'S Built-In Electric Ranges have been "engineered" to provide package units that make installation work a fast-running, low-cost job. Both oven and counter units have the most advanced automatic features for cooking and baking. You'll also find trend-setting styling, in metallic and porcelain finishes, that adds luster to any kitchen. Full information is yours for the asking. PREWAY also provides a feature-packed easily removed electric grille.



PREWAY Range Hoods have a "Look" about them. Their simple, easy-to-clean interior and exterior design makes sense. The blower fits into a slot, can be instantly removed or inserted. No screws, bolts or tools are needed. The filter, too, is fitted into a groove — is simply pulled out for washing, then pushed back in. Finishes are coppertone, stainless steel and white enamel with matching splash plates. Here again, with PREWAY, is the brand of built-in appliance that adds to your reputation and builds lasting goodwill. Send for full information.





13 Cubic Foot Capacity Refrigerator-Freezer, automatic defrosting, roll-out shelves, two slide-out crisper drawers, ample room for gallon milk jugs, etc.

Giant Zero Storage Compartment holds 156 lbs. of frozen food.

PREWAY'S Electric Portable Vectaire Heater is a great performer. Air, heated by range-type elements is directed through a venturi orifice which does the work of a fan and propels a heated stream of air out into the room. This air stream — heated to a temperature of 200 degrees — moves at the rate of 135 feet per minute. There are no moving parts, no disturbing motor hum, nothing to get out of order. Thermostatic control and manual operation — a service free heater that you can sell and forget about while it builds goodwill for you. Write for informative bulletin.

For full information on any of these lines, and the name of the distributor nearest you, write

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9357 Third Street, North
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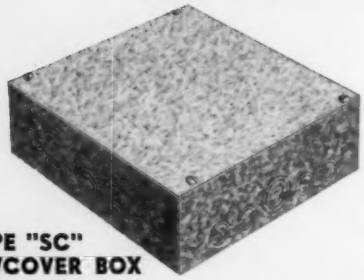
STEEL or ALUMINUM

Contractors, Industrials, Utilities, Municipalities, REA's

CABINETS AND BOXES

TYPE "PF" TELEPHONE CABINET

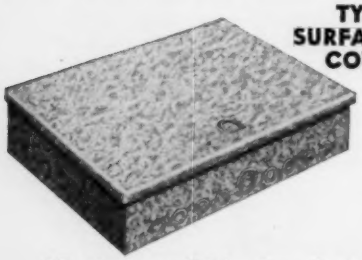
Surface or Flush Mountings in either galvanized or grey enamel finish. Constructed from the finest steels available, all in compliance with the Underwriters Laboratories specifications.



TYPE "SC" SCREWCOVER BOX

Durable Formed Construction, galvanized or grey enamel finish, with or without knockouts. Sizes to your specifications.

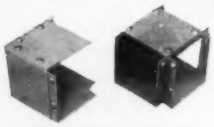
TYPE "A" SURFACE HINGE COVER BOX



All sizes available for electrical cutouts, switches, relays, junction and pull box applications, galvanized or grey—with or without knockouts.

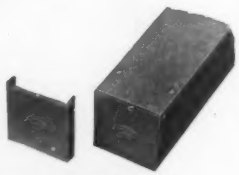
WIREWAYS and DUCT

TYPE "SD" SCREW COVER AUXILIARY GUTTERS



ELBOW and TEE

"U" CONNECTOR



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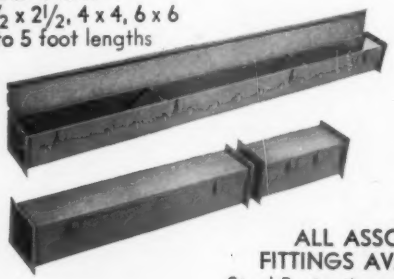
For Switches, Panel Boards or Straight Runs, you can't match the flexibility, greater capacity and easy installation of B&C wireways. Die formed construction of heavy gauge sheet steel, as specified by the Underwriters Laboratories and the National Electrical Code.

HINGED COVER WIREWAYS

TYPE "HCW"
2½ x 2½, 4 x 4, 6 x 6
1 to 5 foot lengths



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Economical to install and maintain — tapping, splicing, additions, inspections, may all be made within the limitations of the National Electrical Code.

Write for descriptive catalog containing installation data and price list.

Your Seal of Dependability and Safety

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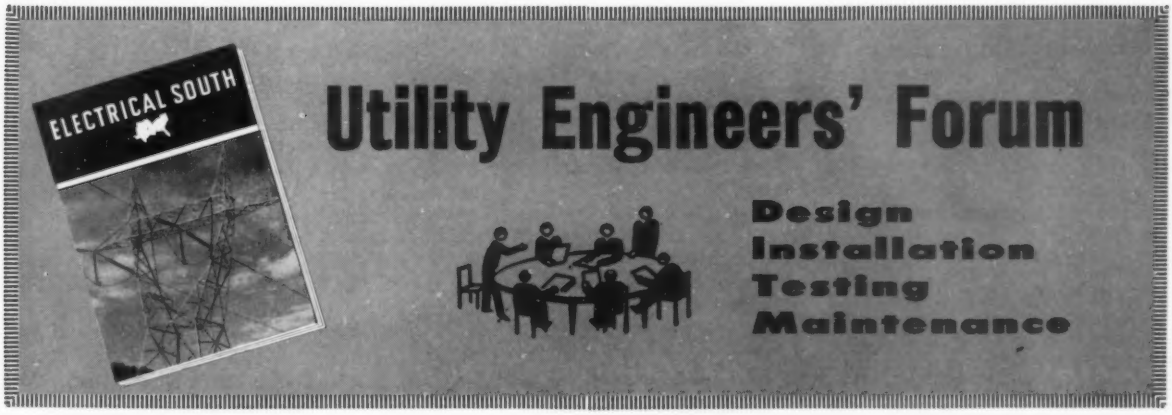


Construction budgets at all-time high

Industrial expansion in the South and Southwest, as well as general load growth, is keeping light and power company construction budgets at all-time highs. New generating facilities account for a large part but distribution and transmission are major items.

GEORGIA

◆ A 1957 CONSTRUCTION budget of more than $51,000,000, the largest in the Georgia Power Company's history, was approved recently by the company's board of directors. This figure compares with $40,000,000 spent in 1956.

In addition to this record expenditure, John J. McDonough, president, said approximately $11,000,000 in cash would be paid for the properties of the Georgia Power and Light Company and about $2,400,000 would be invested in new and improved facilities in the South Georgia area. The Georgia Power Company will also assume the bonded debt of the Georgia Power and Light Company amounting to $7,705,000.

Mr. McDonough said the largest single item in the Georgia Power budget is the continuation of work on two 125,000-kilowatt generating units at Plant Yates, near Newnan. The first of the two new generating units will come into service in June of 1957 and the second in June of 1958.

Work will be started during the year on the construction of the Oliver dam on the Chattahoochee river at Columbus, provided a license for the Middle Chattahoochee development is received from the Federal Power Commission. The plant is expected to be completed in 1959.

Construction of a second unit of 75,000 kilowatts will be begun at Plant McManus, the company's steam-electric generating plant at Brunswick. This additional power source is made necessary by the rapid growth of industry in Scutheast Georgia. This plant will also serve the Georgia Power and Light Company area. Completion is scheduled in 1959.

Substation improvements

Major construction projects which will serve to enlarge and strengthen the company's transmission system are as follows: a 20,000-kilowatt substation at Millen; a 20,000-kilowatt substation in the southeast section of Atlanta; an 18,000-kilowatt substation in the Chamblee area; completion of a 20,000-kilowatt substation at Cedartown; a 44,000-volt transmission line from Bluffton to Cuthbert; and a 44,000-volt transmission line from Plant Mitchell to Camilla.

Additional substations and connecting transmission lines will be constructed at Doraville, Thomson, Wesleyan College, Clayton, Lavonia, Gainesville, Smyrna, Pleasantville, Alpharetta, Statesboro, Pembroke, Summerville, and in the Clark Hill reservoir area.

The following transmission substations will be enlarged: Dalton, Cornelia, Commerce, Wellston, Cartersville, Baxley, Elberton, Ludowici, Blakely, Summerville, Thomaston, Athens, Americus, Chickamauga, and Northwest, Boulevard and Grady in Atlanta.

In the Georgia Power and Light Company area the principal construction project is a 110,000-volt line from Plant McManus to Waycross. This is the first step toward providing additional power from the Georgia Power Company system to the South Georgia area. The new power supply will become available upon the completion of the Plant McManus second unit in 1959.

ARKANSAS

AREA GROWTH and the increasing demand for electric service will require Arkansas Power & Light Company to invest more than $13,000,000 in expansion and improvements of its electric system in 1957.

This was revealed recently by President R. E. Ritchie who announced that his company has budgeted approximately $13,-

770,000 for 1957 to be used for improving urban and rural power delivery, improving high voltage transmission facilities, and extending service to new customers.

Ritchie said the biggest part of the 1957 construction and expansion program is earmarked for distribution improvements. This year's program compared with an outlay of $8,250,000 in 1956.

71% for distribution

Approximately $9,850,000 of the total budget will be used for urban and rural distribution improvements. This work includes substation construction, installation of larger wires so that line voltages can be increased, installation of larger transformers, pole replacements, and building lines to serve new customers.

AP&L expects to invest approximately $2,402,000 in transmission line construction and improvement next year. Much of the transmission work will be the installation of shield wire to improve lightning protection on high voltage facilities.

AP&L has consigned approximately $1,348,000 of its budget for general construction or improvement of service facilities such as storerooms, service centers and local offices. The company has allocated $170,000 for minor improvements of power plants in 1957.

Record peak load

AP&L's peak load reached a record high in 1956. On July 27, the company recorded a system load of 783,073 kilowatts. Previous high was 762,395 kilowatts during the summer of 1954. The company expects its peak load to reach 900,000 kilowatts in 1957.

Saleswise, AP&L is anticipating another good year. The company expects to increase total kilowatt-hour sales by 9%, or 413,600,000 kilowatt-hours, during 1957. Budget estimates for 1957 anticipate an increase of 8.8% in revenues, approximately $4,072,900. AP&L expects to extend service to 5,664 new customers during 1957.

AP&L reached a new peak of efficiency in the operation of its power plants in 1956. The company completed installation of automatic load control equipment at the Lake Catherine Steam-Electric Station at Hot Springs. This means that every major steam power plant in Arkansas is now operating with automatic load control equipment. Load control enables the dispatcher at Woodward Dispatching Center at Pine Bluff to automatically load each generating station so that electric demands of the customer are met at all times at the lowest possible cost.

In 1956, the company occupied new business offices at Camden and McCrory; completed service centers at Stuttgart and Batesville.

ALABAMA

THE DIRECTORS of Alabama Power Company at a recent meeting approved a record budget of $47,000,000 for additions and improvements during 1957. This is more than one and a half times the $30,500,000 construction and improvement budget in 1956. It is the company's largest annual construction budget.

The funds for construction will be provided from the sale of $14,500,000 of bonds and common stock of $8,750,000; the balance will be provided from internal sources of the Company.

Thomas W. Martin, chairman, stated, "The board's approval of this record construction budget is ample evidence of confidence that greatly expanded power facilities will be needed in Alabama in the ensuing years. We can't wait until the demand is there before we begin building power plants. We must have them ready when the need arises, and all indications point to the fact that within the next 10 years power requirements in the area served by Alabama Power Company will more than double—evidence that, as predicted, the last half of the 20th century belongs to the South."

Of the amount budgeted for 1957, approximately $12,000,000 will be for construction work on 165,250 kilowatt steam generating unit No. 9 at Gorgas, expected to go into operation in 1958. First stages of construction of a $25,000,000 addition to Barry Steam Plant near Mobile, to nearly double the present capacity of 250,000 kilowatts, will require 3½ million dollars. In anticipation of receiving the licenses for its proposed Coosa and Warrior River projects, more than 3½ million dollars has been budgeted for starting construction work on them.

Improvements at existing steam and hydro plants will cost $1,200,000.

Transmission improvements

Transmission line additions and improvements, including substations and connections, will total more than $5,000,000. Improvements in supply facilities and extensions to new and existing customers will cost nearly $18,000,000. For expansion of and improvements to its Gorgas Coal Mine, an investment of 1¼ million dollars will be made. More than half a million dollars worth of automotive and other equipment will be bought.

The company expects to complete within the year an office building in Mobile estimated to cost $1,400,000, and expects to make substantial progress toward the construction of a 1½ million dollar addition to its General Office Building in Birmingham.

Substation projects

Detailed items include the construction of new substations, or increasing the capacity of existing substations as follows:

Birmingham — Northside and Shades Valley areas, Acipco, Canterbury, 16th Street, 13th Street, Wahouma, Howard College, 6th Street, Idlewild, Five Points, Concord, Valley View, Shadyside, Wylam, Avondale, Bessemer, Mountain Site, Ketona and Third Avenue West.

Montgomery—A new transmission substation in East Montgomery.

Mobile—Craft Highway, Loop, Fulton Road, Government Street Road, North Prichard, Halls Mill Road, Brookley Field, Silver Hill.

Tuscaloosa — 11th and 14th Streets and at Holt.

Similar improvements will be made at Abbeville, Anniston, Eufaula, Gadsden, Demopolis, Prattville, Haleyville, Montevallo, Sweetwater, Slocomb.

Construction of additional transmission lines is scheduled for the Montgomery, Mobile and Tuscaloosa areas.

Building construction other than the office buildings at Mobile and Birmingham will include the completion of new crew headquarters and warehouse at Eufaula, new crew headquarters at Headland, and the establishment of a suburban crew headquarters in the Shades Valley area of Birmingham.

NORTH CAROLINA

THE AVERAGE residential customer of Duke Power Co., Charlotte, used 45 per cent more electricity in 1956 than the average consumer across the nation.

Year-end figures compiled by Duke show that Piedmont Carolinas customers averaged 4,323 kilowatt hours as compared with the national average of about 3,000 kwh a year.

The steadily-rising use of electric power is an accepted index of prosperity and growth of the industrial, rural, and urban Piedmont Carolinas.

The Duke system increased its 10.85 billion kwh in 1955 to 11.64 billion, or an increase of 7.3 per cent. Production is now greater in one day than in the whole year in 1906.

Duke Power planning engineers see no end in sight to growth in one of the nation's fastest-growing areas and in 1956, anticipating the need for increased facilities:

1. Announced that Allen Steam-Electric Generating Plant near Belmont will open in 1957 with two 175,000 kw-capacity units instead of the one originally planned. Initial investment in the Allen Plant is $41 million. When the other three units are added as needed the plant will have cost over $100 million and have a capacity of over 1 million kw.

2. Opened a $750,000 central system warehouse on Toddville Rd. near Charlotte.

3. Announced a $20,500,000 addition to Lee Steam Station at Williamston, S. C. The 175,000-kw Lee addition will increase the plant's output by 85 per cent and is scheduled for completion in 1958.

4. Announced a third unit for Allen Plant, the largest in service on the Duke system and one of the largest in use anywhere. Allen No. 3 will have a capacity of 275,000 kw and will cost over $30 million. It is scheduled to go on the line in 1959.

5. In order to deliver the tremendous output of Allen and Duke's other plants, a $10 million, 125-mile increase was announced for the company's 230-kv transmission line. The first new link in the 230,000-volt line will connect Allen and Riverbend (near Mt. Holly) Plants. This project will be completed this year and two links of the new line will extend to a point near Hickory and a point near Winston-Salem in 1958.

6. Contracted for helicopter service to patrol its 4,000 miles of transmission lines, checking for flaws in lines and insulators and right-of-way maintenance.

7. Participated in the formation of Carolinas Virginia Nuclear Power Associates Inc., a four-company corporation formed to build a nuclear reactor on a site not yet chosen. Other companies participating are Carolina Power & Light Co., South Carolina Electric & Gas Co. and Virginia Electric & Power Co. Duke President N. A. Cocke is also president of the nuclear power group.

8. Stepped up its forestry and land management program.

These activities represent a portion of Duke Power's continuing expansion program in which the company has invested over $300 million since 1946 with another $175 million committed through 1958.

The company's present generating output is about 12 billion kwh a year, over 90 per cent of which is steam-electric and the remainder hydro-electric.

TEXAS

THE TEXAS Power & Light Company expects to be serving 451,600 customers with more than 6 billion kilowatt hours by 1965, according to W. W. Lynch of Dallas, TP&L president. In 1956, the utility served about 330,000 customers and supplied more than 2.3 billion kilowatt hours.

In looking ahead to the expansion of TP&L facilities in the rapidly growing East Texas area and the area served by his power company, Mr. Lynch recently told a group of East Texas business leaders and TP&L employees:

"With the growth and development of the TP&L service area, greater obligations are placed on the company to use its resources to aid such growth and development, and by sound management and farsighted planning to provide adequately for all of the needs for power in the area."

Mr. Lynch has announced that his company has for several years been developing new power plant sites. One of them will be located on Stryker Creek northwest of Nacogdoches, Texas. Mr. Lynch said that with the addition of this plant and a new unit at the Lake Creek station near Waco in 1959, TP&L generating capacity will reach more than 1 million kilowatts.

New transmission lines

During 1956, he said, new 138,000-volt transmission lines were built from Stryker Creek to Jacksonville, Texas, and from Stryker Creek to Nacogdoches. Plans call for the construction this year of a new 138,000-volt transmission line from Lake Creek through Palestine into the Stryker Creek plant site.

In regard to financing the expansion, Mr. Lynch said it was impossible in the nature of the business of his company to make additions of new generating stations, transmission lines, and distribution system improvements and extension lines from current earnings. He said that during the last five years, approximately $110 million was required to meet the company's construction needs. Funds to finance this came largely from preferred stock, first mortgage bonds, debentures, and cash equity.

During his East Texas tour of the company's properties, Mr. Lynch announced that TP&L is formalizing a management development program to assure the company of a continually improving caliber of managerial personnel which can take on greater responsibilities and assure the greatest scope of opportunity to each employee so he can attain a position commensurate with his skill and ambition.

According to Mr. Lynch, TP&L, working with local Chambers of Commerce and other groups in 1956 helped to locate 32 new industries in the area served by the company. These new industries have an annual payroll of $8 million and employ 2,025 persons. He said that this expansion will have considerable economic impact upon the business life of the area.

◆ PLANS have been announced by Central Power and Light Company to spend an estimated $125,000,000 during the next five years for the construction of new electric facilities in South Texas.

President J. L. Bates, speaking at the company's annual management conference, said the expansion plans were based on a recently-completed economic forecast which indicates that South

(Continued on page 120)

Preventive maintenance

Rapid system growth is giving a new importance to preventive maintenance. This comprehensive discussion of the subject points out that the trend is toward more inspections and more testing to determine specific needs and to conserve manpower.

By L. H. Cardwell, Operating Division Head, Dallas Power and Light Co., Dallas, Texas

◆ PREVENTIVE MAINTENANCE under the pressure of system growth, has become a full time job instead of something to do during the slack-period. More and more scheduled maintenance jobs are giving way to more inspections and more testing to determine the specific need and to conserve manpower.

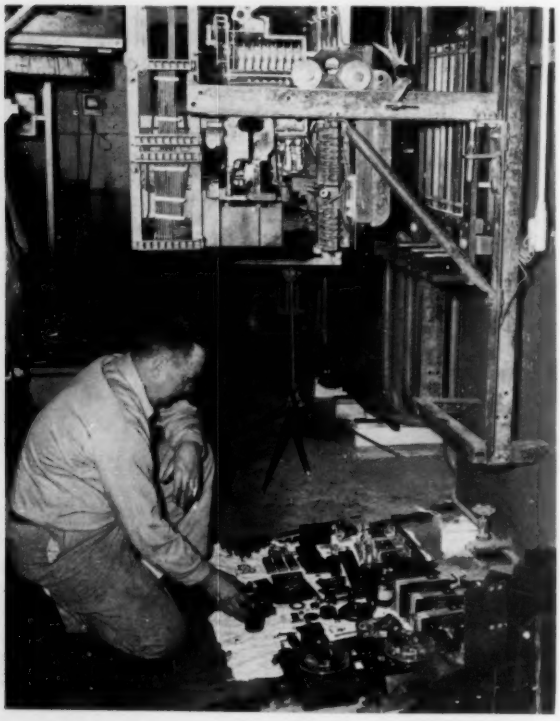
The slack period customarily used to catch-up on maintenance has all but vanished and it has been necessary to carry out an increasing amount of maintenance work all through the year along with the construction of feeders and substations and connecting new customers. Naturally this has called for re-examination of past maintenance procedures, particularly jobs that had been done on a more or less routine basis for years, to see if they really needed to be done.

As a result of this study a tentative maintenance plan is in operation based upon frequent field inspections to determine the specific need for maintenance, with records of performance and records of the results of the inspections. The inspection group issues written requests to carry out specific maintenance jobs. These requests provide a report back that the work has been completed.

This has been a forced move; to get the job done it had to be broken down to pieces that could be worked along with new construction jobs. Some special maintenance jobs that could not be broken down were re-scheduled where practical.

Schedules revised

For instance it was the practice at one time to overhaul network protectors annually. This schedule was examined and the experience of other companies was obtained. It appeared that it might be possible to extend this schedule to 2 or 3 years without too much trouble.



Network protectors are completely overhauled on a 3 year schedule. This includes cleaning, replacement of worn parts, lubrication, adjustment and tests.

Bolted type service entrance connectors formerly used on #4 and #2 aluminum service cable are replaced with compression aluminum connectors.

# of distribution equipment

Experience with the 3 year schedule has been such that now a 4 year schedule is being considered.

Before the decision was made to increase the time between overhauls consideration was given to a study of the number and cause of protector failures experienced on the drop-out tests. This study showed the principal causes of failure to open were relay trouble and open circuit in the protector trip circuit. Failures from these causes would not be expected to increase with an increase in time between overhauls provided scheduled relay tests were continued.

If the 4 year period between overhauls is tried as proposed, the results of the drop-out test will be watched carefully by the maintenance group for any effect on network protector performance. In this way it is expected that adverse results will be detected early and corrective measures taken.

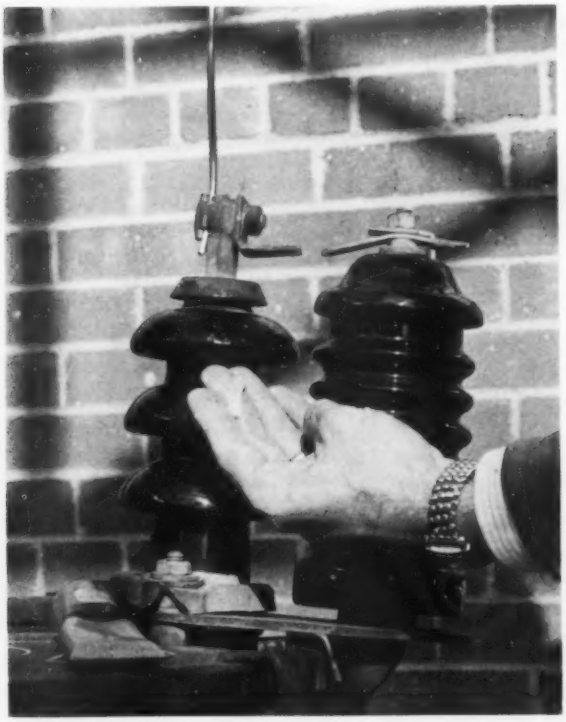
Somewhat the same procedure has been applied to general overhead maintenance. There was a time, not too long ago, that—in the fall of the year line crews were handed a district map and told to do maintenance work—this was called "district maintenance" and was supposed to cover everything required to put lines in first class condition, such as replacement of deteriorated cross arms and poles, tightening guys, straightening poles, replacing broken insulators and so on. But it just didn't work out that way. The easy jobs were done but somehow the tough ones were left over.

Pole-by-pole surveys

A much better way seems to be a pole by pole survey to determine the maintenance work required and individual requests to do each job. This appears to have some advantage for routing by the crew and it breaks the job down where it can be fitted into other work a crew might have in the immediate area.

It is believed that the final arrangement will be a form of centralized control under a maintenance supervisor probably within the group responsible for doing the work. In addition to records of equipment performance, outage data, and experienced inspection personnel, the maintenance supervisor should have analysts to organize and interpret the performance and inspection data. And he should have authority to make decisions and get the work done.

This maintenance group would act as a clearing house for all



Silicone compound coatings hand applied to bushings and insulators exposed to cooling tower spray have reduced trouble from leakage and flashover.

A chipper is used to reduce tree trimmings to chips. Chip disposal is handled from distribution headquarters by contract with a waste disposal company.

maintenance work in their area of activity. Reports and orders from various sources would be duly recorded and investigated, duplicate reports would be noted and coordinated, and finally the work would be scheduled according to the best engineering appraisal of necessity and urgency. Notice of completion of the work would be duly reported back to the source.

On the following pages are lists showing some of the things we do to avoid breakdowns in equipment.

Inspection of 13 kv lines

Routine inspection:

Broken insulators and evidence of insulator flashover
Proper application of wood cross arm braces and guy attachments to take advantage of insulating value of wood structure
Bad tree conditions
Need of maintenance on air break switches
Use of lightning arresters at normally open air break switches
Application of bird guards on transformer bushings
Deteriorated cross arms and poles
Truck damage to poles and guys
Slack spans
Leaning poles
Broken ground wire
Blown transformer fuses

Special inspection—investigation of line outage:

Inspection of laterals and large transformer installations to determine cause of outage, extent of damage and remedial measures
Inspection of feeders to determine cause of excessive momentary outages—slack spans - swinging short; damaged lightning arresters; broken transformer bushings; bad tree conditions

Inspection of 69/138 kv lines

Routine—continuous:

Broken insulators and evidence of flashover
Damaged conductors
Damaged towers
Pole or cross arm damage
Encroachment on right of way
Grass and weeds
Tree clearance

Special inspection—investigation of line outage:

Broken insulators and evidence of flashover
Damaged conductors
Damaged towers or poles
Tree clearance

Investigation of secondary bus outages

Residential and light commercial:
Condition of secondary bus and guys
Transformer bushings and lightning arresters
Load estimate and transformer capacity
Condition of services
Large power:
Broken insulators or evidence of flashover
Transformer bushings and lightning arresters
Load estimate and transformer capacity
Possibility of trouble on customer's premises

Inspection of capacitors

Primary capacitor banks—monthly —June through October:
Blown fuses
Bad capacitor
Time clocks and voltage control units
Oil switches
Secondary capacitors:
Residential area - annual, in spring of year—blown fuses, bad capacitor
Industrial substations - annual, in summer—blown fuses, bad capacitor

Inspection of automatic dual service switch installations

Blown fuses
Dual service switch position
Operation counter reading
Transformers and potheads

Industrial substations

Inspection of industrial substations —annual in summer:
Oil temperature
Broken or dirty insulators or bushings
Oil leaks
Condition of yard, fence and structure
Fuses
Capacitor installation
Evidence of heating of transformer secondary terminals, bus or service connections

Pole inspections

Up to about eight years ago, "pole inspectors" made field inspections of all DP&L poles to determine their condition and estimate the life left in the pole. The entire system was covered every five years.

In the past 10 years, new construction has doubled the number of poles on the system while 4 kv to 13 kv conversion jobs and jobs increasing the conductor size on old 13 kv lines have necessitated replacement of a very large number of old poles. The net result is that about ¾ of the poles on the system are less than 10 years old and no special inspection is made of poles only. Bad poles are reported by line inspectors, linemen, troublemen, and field engineers.

Ten years ago the DP&L system was on about 58,000 poles of which about 37,000 were owned and 21,000 belonged to others. The DP&L system currently is on about 107,000 poles of which about 71,000 are owned and 36,000 belong to others.

Tree trimming

The tree trimming program is aimed at complete system coverage each year on the premise that once established this program requires only elimination of annual growth to maintain reasonable clearance.

It is expected that some trouble will be experienced with tree clearance during severe windstorms or ice storms as the trimming practice in effect is necessarily a compromise between what is desirable and what the property owner will permit.

The tree trimming trucks are equipped with specially designed bodies, special truck mounted ladders, and power pruning and trimming tools. A chipper is used to reduce trimmings to chips. A truck with a hydraulically operated boom mounted platform is available for difficult trimming jobs. Chip disposal is handled from distribution headquarters by contract with a waste disposal company.

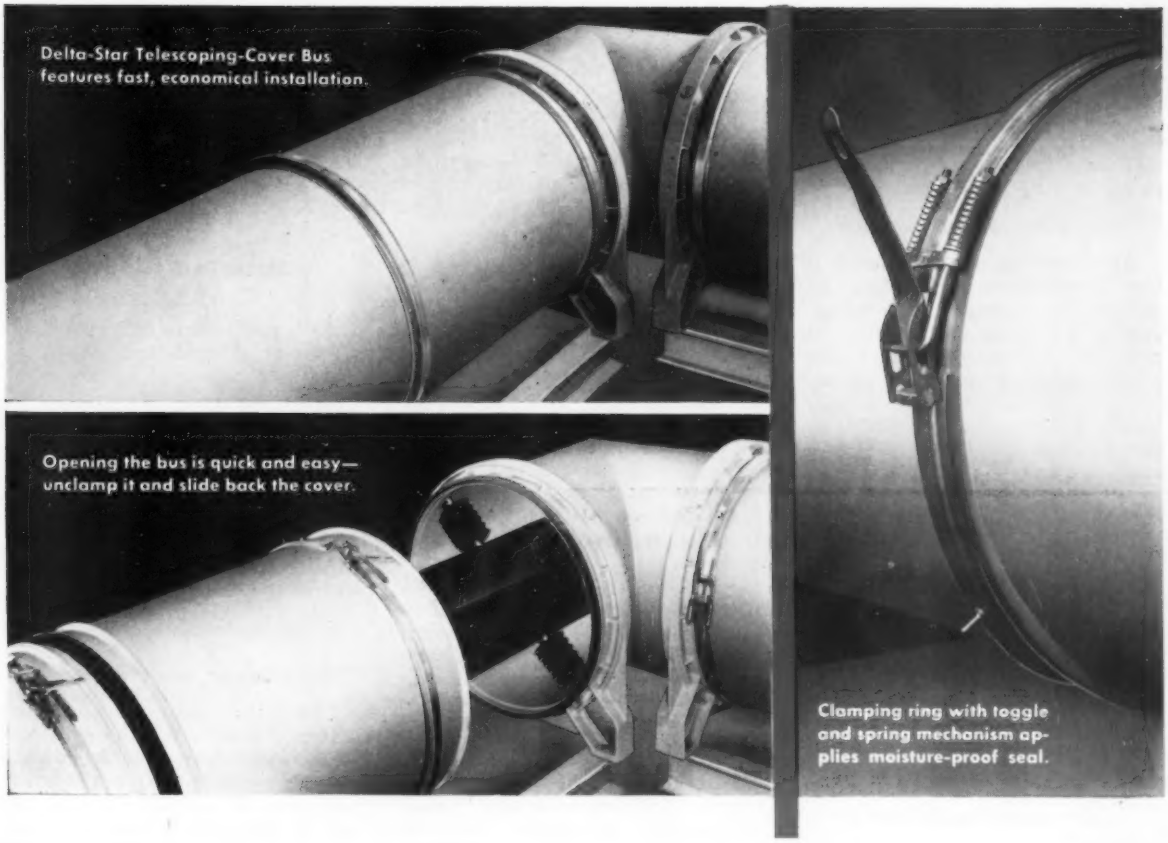
Industrial substations

When inspection of an industrial substation shows that maintenance work is necessary, it is the practice to replace broken insulators and bushings, clean insulators and bushings, repair oil leaks, and clean and paint the transformers if required.

In areas where insulators and bushings are subject to contamination by deposits from spray from coling towers or by other industrial waste, the insulators and bushings may be coated with silicone wax to reduce insulator leakage and risk of flashover.

Bolts, hardware and supports in bad condition are replaced. Fuse cutouts and lightning arresters are inspected and replaced if defective.

This work is carried out by a


Delta-Star Telescoping-Cover Bus features fast, economical installation.
Opening the bus is quick and easy—unclamp it and slide back the cover.
Clamping ring with toggle and spring mechanism applies moisture-proof seal.

When you're thinking about cost reduction, check Delta-Star's Telescoping-Cover Bus

From installation to maintenance you reduce time and costs with Delta-Star's telescoping-cover isolated phase bus.

Installation is greatly simplified—for speed and economy. Longitudinal sections 6 to 8 ft. long can be pre-assembled and delivered in lengths as large as your facilities can handle. Telescoping covers clamp into position—are locked together with a toggle and spring clamping mechanism—no bolts needed. Clamping rings with fully-trapped, self-sealing neoprene gaskets make the bus as water-proof as it is possible for a gasketed bus to be. Gasketing is at a minimum—no longitudinal gaskets required.

Telescoping-cover bus sections can be opened and inspected without tools—*in just a few minutes.* A 2 ft. 6 in. opening allows ample room for inspection and cleaning.

Current-carrying ability and minimum-heating characteristics of the telescoping-cover bus proved out very well in tests and in use.

For your new bus runs—or replacements—be sure to check Delta-Star's telescoping-cover bus.

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H. K. Porter Company, Inc.
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District offices in principle cities

HKP

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line crew with assistance from other divisions when required for special jobs such as transformer repairs or transformer painting.

Weed killer, Dupont's Telvar-W, is sometimes used to control grass and weed growth in the yard. This is applied by professionals.

Transformer maintenance

All transformers are opened in the Transformer Shop and inspected for damage, loose fastening, oil level, condition of the oil, and loose connections before they are placed in Stores. This applies to new transformers just received and to transformers removed from service alike. The primary of each transformer is energized and voltage readings are made on each secondary coil.

Old transformers are painted if required. All accessories are checked and minor repairs are made as required.

The circuit breaker in CSP type transformers 15 kva and larger removed from the system are set up approximately 30 per cent if not previously set up. The signal light setting is left normal where the type of breaker used will permit.

CSP type transformers

The circuit breaker and overload signal light in CSP type transformers, 15 through 50 kva size, are checked for proper operation and are recalibrated if required. This test requires about 15 minutes per transformer and consists of sending a calibrating current through each thermal trip element and part of the secondary winding with the primary winding shorted and measuring the time required for the signal light to come on and the breaker to open.

Transformer oil

No attempt is made to reclaim deteriorated transformer oil except to remove moisture and restore the dielectric strength to more than 30 kv. Oil that is very high in acidity and badly sludged is discarded. It is replaced with used filtered oil if the equipment is old. New inhibited oil is used when it is necessary to replace the oil in new transformers.

Three tanks and associated piping permit storage of new inhibited oil, used filtered oil, and used oil awaiting filtering.

The practice is to place the oil removed from transformers in the used filtered oil tank if the oil is in new condition, either conventional or inhibited oil. If the oil removed from a transformer has water in it or is otherwise contaminated it is placed in the used oil tank and filtered before use.

All new oil purchases are of inhibited oil which is obtained from one of several oil companies furnishing approved transformer oil.

Lightning arresters

Valve arresters removed from the system are inspected for cracks or other visible damage. Leads are spliced if necessary. If otherwise satisfactory the unit is finally flashed over on a small a-c hipot set to determine the approximate spark over voltage. Arresters with too low spark over voltage are junked. Arresters with spark over in acceptable range are placed in Stores.

Expulsion arresters are replaced if the gap is sufficiently burned to indicate excessive follow current. Arresters with external damage are repaired. The gaps are set to ½ inch length.

Miscellaneous equipment

Airbreak switches, cutouts, reclosers, and miscellaneous small distribution equipment removed from the system are repaired and adjusted for proper operation in the Transformer Shop before being placed in Stores for reuse.

Inspection of meters, services

Check nameplate rating, size, register ratio, dial constant, etc.

Check meter for overload and make meter change if necessary

Check voltages at meter and service

Check polarity on all meters

Get rotation on all meters

Re-number all meters that need it, on the dial face, including certified meters

Replace all canopies that need to be replaced

Order test on meters when deemed necessary

Check for U.R.S. on all meter installations

Get pole number on all meters

Make sure all meters on apartment houses are tagged

Check service wires for needed maintenance

Re-anchor all bases that are loose

Check for correct address

Replace bolted type connectors found on aluminum services with compression type aluminum connectors

Damaged or bare 3-wire #8 or #6 copper services are replaced with aluminum Triplex #4 or #2 cable as required and compression type aluminum connectors are used. Bolted type connectors formerly used on aluminum service are being replaced with compression type aluminum connectors.

Meter test schedule

8 years

All self contained watthour meters single and three phase

All self contained watthour demand meters with thermal registers

3 years

All self contained watthour demand meters single and three phase with mechanical registers

1 year

All meters with capacity of 100 kva or more

½ year

Specials

Transformer vault inspection

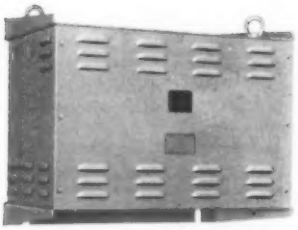
The transformer vaults in the network area are inspected and cleaned on a weekly schedule during the summer peak load period and on a 30 day schedule in the rest of the year to remove paper and trash from ventilators which experience shows constitutes a fire hazard. The operation of ventilating fans is checked and inspections are made to detect the need for other maintenance.

Network protector tests

Drop out tests are made on the underground network feeders at two week intervals to check the operation of network protectors. Each feeder is opened and reclosed one feeder at a time until all feeders have been checked or until a feeder "hangs in." The feeder oil circuit breakers are opened with the overload relays and are left open approximately one minute before reclosing to allow the network protectors to open. Opening of the network protectors is indicated to the operator by zero reading of the feeder voltmeter on the circuit breaker panel.

If the voltage fails to drop to zero, indicating that a protector has failed to open, the feeder is left out and the network protector maintenance crew is dispatched to find the protector that failed to open and determine the cause. This protector is locked open, the feeder is energized, and the drop-out test is resumed.

There's a SORGEL Dry-Type Transformer for every need



15 to 50 Kva 3-Phase
Wall Mounting Type

- Operate lighting and other equipment from power circuits, and higher distribution voltages.
- For high voltage interior distribution and network systems.
- Operate special equipment from standard circuits.
- Change odd voltages to standard voltages and phase changing.
- Available in all standard and intermediate ratings and voltages. ¼ to 3000 Kva up to 15000 volts.

75 to 300 Kva 3-Phase

SORGEL TRANSFORMERS

•

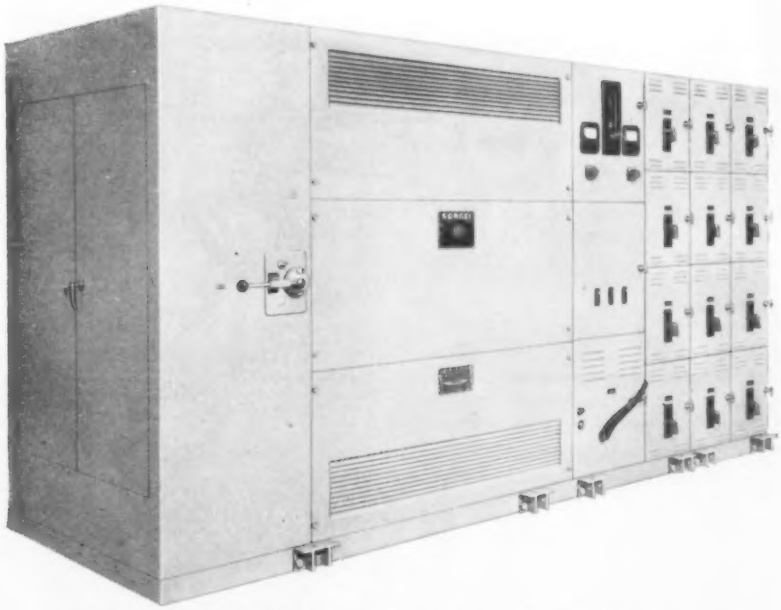
D.C. Saturable Reactors
and
Special Transformers

•

Substations

SORGEL transformers, either dry-type or Askarel-cooled, are incorporated in substations, complete with primary or secondary switchgear.

They are procurable with any make of switchgear, and from any substation manufacturer.



500 KVA, 3 phase, 2400 volt unit substation with primary fused load break switch; secondary metering; de-ion molded case breakers for emergency load and drawout breakers for low voltage distribution; primary switch key interlocked with secondary main breaker.

SORGEL ELECTRIC CO., 835 West National Avenue, Milwaukee 4, Wisconsin
Sales Engineers in Principal Cities

This test provides a means of locating defects in the trip function and reduces the probability of a network protector hanging in on a feeder fault.

Network protector overhaul

All network protectors are completely overhauled every 3 years. Each protector is disassembled, the panel and parts are cleaned with a solvent and inspected. All worn or defective parts are replaced, the unit is reassembled, lubricated, and adjusted.

The network protector relays are also cleaned and tested, after which the complete network protector with relays is given mechanical and electrical tests to verify the mechanical and electrical operation.

Electrolysis tests

Direct current voltage-difference and voltage to earth surveys are made annually in all manholes in which lead covered cable is installed. These tests are made to detect unfavorable electrolytic conditions which tend to cause cable sheath damage and subsequent cable failure.

(Continued on page 120)

Photos of rail shipment assure better service

◆ A NEW CUSTOMER service, which utilizes photographs taken of orders just prior to their shipment by rail, is being used at Kaiser Aluminum & Chemical Corporation's Newark, Ohio, rod, bar, wire and electrical conductor works.

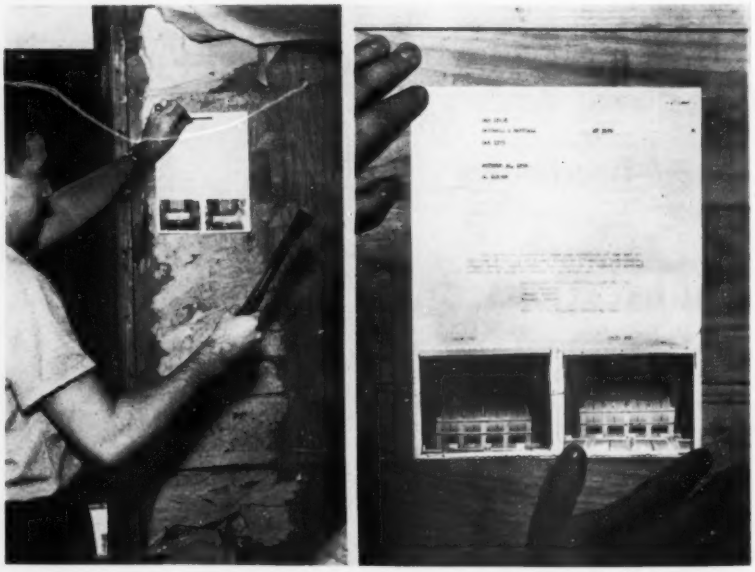
The new service was perfected by Newark Works' Shipping Department. Photographs are taken with Polaroid cameras of all rail shipments prior to their leaving the mill. Two of the photographs—a picture of each interior end of the car—are sent to the district sales office in the customer's area, a pair of the photographs are placed with the packing list which is tacked to the inside wall of the railroad car itself, and two photographs are kept on file at Newark Works.

The new technique fulfills many functions. The photographs not only graphically show the customer the condition of the shipment when it left Newark Works, but also have been used by customers as a receiving report.

The photographs also assist Kaiser Aluminum's Shipping Department by recording exactly how the car looked upon departure, so that blocking and loading techniques may be perfected whenever necessary.

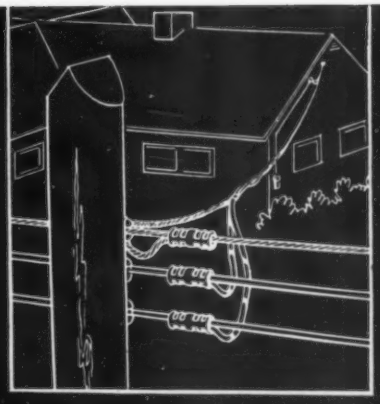
The technique has been in operation in the Shipping Department at Newark several months.

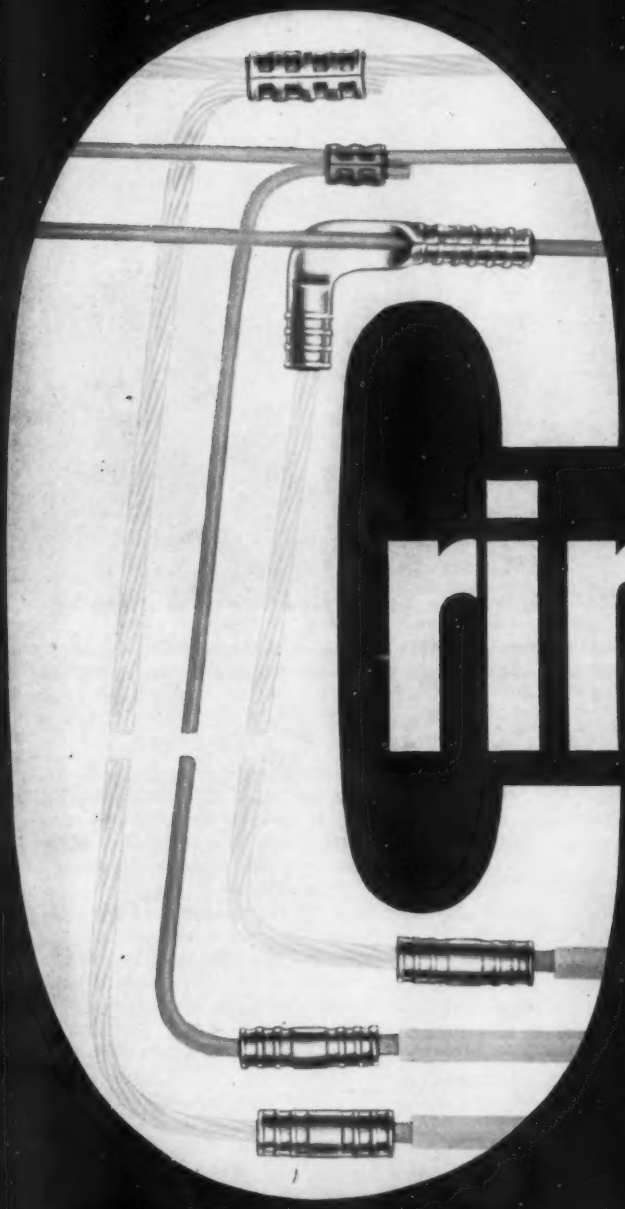
Member of the shipping department at Kaiser Aluminum & Chemical Corporation's Newark, Ohio, Works photographs railroad car shipment of aluminum electrical conductor as a new customer service. The photographs, taken with Polaroid cameras for quick development, graphically show the customer the condition of the shipment as it leaves the plant.



Photographs showing condition of rail shipment are tacked (left) to the inside wall of a railroad car. Close-up (right) shows photographs of the shipment. In addition to the photographs in the car, a set is sent to the district sales office in the customers area and another set is kept on file at the plant.

Do the job better!





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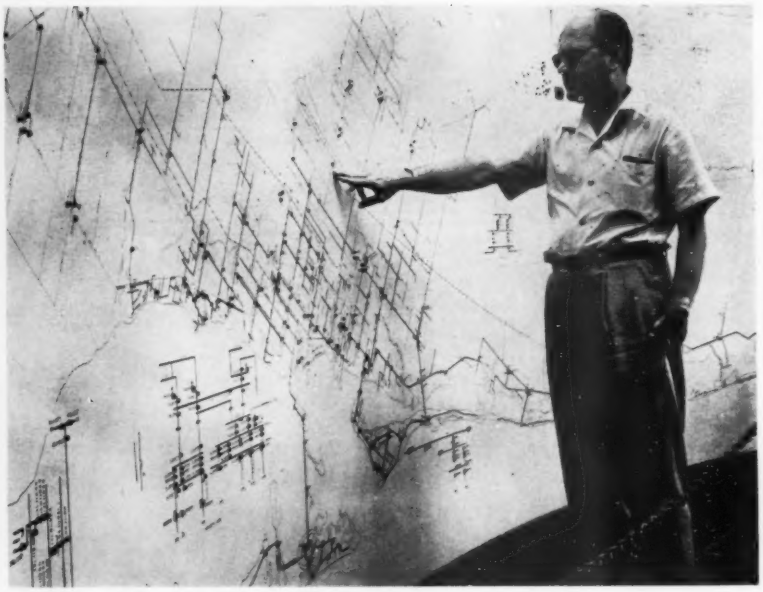
Florida utility cuts outage time

Speed, quick contact characterize Florida Power and Light Company's trouble-shooting truck fleet, now outfitted with two-way radio to maintain round-the-clock vigilance for sudden accidents and other outages.

By C. W. Bailey, Technical Information Center, Communications and Electronics Div., Motorola, Inc., Chicago, Ill.



Trouble dispatcher uses a room-size map to guide radio-equipped trucks of Florida Power & Light Company to emergency calls and construction sites, covering a 75-mile area.

◆ PERHAPS the most important element in the service and public relations policies of any utility company is its readiness to respond to accidents and other outages in its extensive network. Sometimes a frantic race to mend the breach is hardly speedy enough to prevent further damage and hazard.

Such was the case when Florida Power and Light Company installed two-way radio communications equipment on a few of its trouble-shooting trucks some ten years ago. That the move was justified is evidenced by the fact that the company today operates more than 85 radio units.

The two-way radio installation in the Sarasota area came about when Florida Power and Light realized that its mushrooming business required both speed and instant communication.

Florida, the nation's fastest growing sizable state, has nearly doubled population in the last 15 years. Since 1950, it has been gaining new residents at the rate of 370 daily, mostly migration of the elderly and citizens on pensions seeking warm beaches and balmy climate.

In addition, the seasonal attraction of beach resorts tends to increase population steadily. All of which means that the state's demand for electricity has been zooming as never before. To service these customers, as well as growing agricultural and industrial enterprises, Florida Power's plant in Sarasota operates a fleet of trucks over an area 75-miles long and 20-miles wide, and from the Hillsborough-Manatee County lines to Boca Grande, and points between.

Trucks in readiness

The 50 trouble-shooting and installation trucks — constantly in use to erect poles, transmission lines, and maintain the host of electrical equipment on Florida Power's system — must be instantly in touch with base stations at eight fixed stations. And, obviously, a standby crew must operate on a round-the-clock basis to handle emergencies.

"Honestly," says Thurman Doub, the company's organizational specialist, "I don't see how we ever managed without two-way radio service. Not only does it enable us to render prompt service, but it helps prevent trouble.

"For example, we can immediately call the nearest trouble-man to the point of danger, and dispatch him at once to the job. Thus it is of extreme value in any power company's biggest problem—the restoration of service. Upon arrival at the job, if the trouble crew finds more help is required, a message from the truck's radio summons more men and equipment," explains Mr. Doub.

"Our decision to continue installing radio on new trucks as they are added to our fleet is the result of study of our operational needs, and we want radios that are troublefree, since an unreliable unit may cost lives," he maintains.

"There are many other advantages to our two-way radio that are by way of being fringe benefits," adds Mr. Doub. "Since some of our trucks are always on the prowl, our drivers can often alert highway police about traffic accidents and notify hospitals to speed medical aid whenever necessary."

Solution to problems

One important reason for Florida Power's adoption of two-way radio was to solve problems connected with trouble-shooting. Fre-

with two-way radio installation

Company trouble-shooter picks up radio-relayed message from dispatcher and prepares for immediate action. His radio saves doubling back and gets him to emergencies fast.

L. E. Loper adjusts one of the transmitters that form the lifeline of the radio network.

quently a service truck, dispatched to a distant section, would have gone only moments after a phone complaint from the same section was received. This meant duplication of mileage and responsibility, not to mention added wear and tear on both men and equipment, a decided loss in time and money for the Company.

Since a utility's objective is to supply service and produce stockholder profits, these considerations pointed-up the need for a more controllable service truck fleet which could be diverted from one territory to another without delay.

The frequency allotted the local company, 37.86 megacycles, along with 250-watt transmitters in Sarasota and Punta Gorda, and two 60-watt transmitters in Bradenton and Venice, provides adequate range for communication among mobile units without reference to headquarters, unless required.

With technicians constantly involved in preventive maintenance, most commonplace delays and wasted trips have been eliminated. Where trouble or installation crews require instruction on unforeseen job phases, a call to the office furnishes needed information.

Map pinpoints areas

Since a giant map of the electrical coverage of the area pinpoints each hook-up, an incoming complaint gets immediate attention from the dispatcher, who knows instantly what crew is prepared to check on the trouble involved.

The Company's radio system frequently cheats death. For example, there are times when, to clear a fault, immediate switching of high-voltage lines is necessary to kill the circuit. Via two-way radio, the flow of lethal currents can be diverted and re-routed to keep the line safely "dead" as workmen repair and isolate it, feeding area via other lines.

Linemen who work the "hot" lines depend on reliable communications.

"During a sudden fog which is typical in this area, things often happen fast," Mr. Doub recalls. "When our station meters once recorded a fall in potential on one feeder from 66,000 to 13,000 volts, we immediately radioed the nearest truck to go to the trouble spot. An arm on the pole was on the verge of falling, and, had it done so, the fault would have knocked out half the electrical connections in town."

"Another time, a shopper's car hit a pole at night. It happened the pole carried a line that fed an entire shopping center. Our radio crew got there in time to make a fast repair."

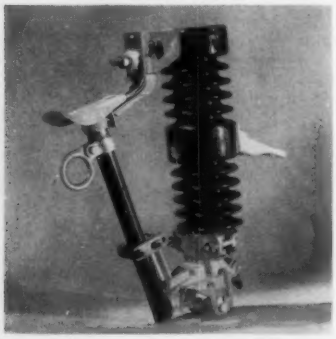
With Florida as the world's largest citrus-growing area, the nation's undisputed winter vegetable capitol, and one of the leading beef cattle states, and with chambers of commerce seeking to attract industry to offset lopsided economy dependent on tourism, it is inevitable that greater demands will be made on the Florida Power and Light Company for increased electricity.

Notes on new utility equipment

Improved fuse cutout gives longer service

HEAVY-DUTY open-dropout fuse cutouts with longer service life and greater operating economy are offered by General Electric Co., Distribution Transformer Department, Schenectady, N. Y.

The new fuse tube has a sheath of fibreglass-reinforced polyester resin, virtually immune to weathering and



aging, the strength of which permits a thinner sheath and a thicker lining of arc-expelling fiber, lengthening tube life.

A redesigned hinge and other metal parts are cast bronze, minimizing corrosion. The bronze hinges operate freely after the equivalent of years of service in salt air, according to General Electric engineers.

Other features include improved hanger design, bird-proof construction, compression-clamped fittings, silver-plated contacts, high-pressure latch, and optional load-break device and disconnect blade.

The new cutouts come in two 100-ampere ratings: 15 kv with interrupting rating of 4000 amperes; and 7.8 kv with 5000-amp interrupting rating.

For additional data, ask for item U-301, using the coupon on page 85.

Consider line elevation in future construction plans

WHERE FUTURE construction may require additional elevation of existing power transmission lines, public utilities are saving hundreds of thousands of dollars by proper advance planning, according to R. A. Troman, manager of the Antenna and Tower Department of Blaw-Knox Co., 300 Sixth Ave., Pittsburgh 22, Pa.

By anticipating the problem of elevating lines, standard tangent angle or dead end towers can be designed for future modification at minimum cost. On a recent Blaw-Knox installation of squatty airport type transmission towers, Mr. Troman said, 21 towers and anchors were designed to accommodate 20 feet of vertical extension.

Basic to any future change in the structures are the tower anchors, which must be strengthened at the outset to carry additional loads when vertical extension is required. Then, should it become necessary for the utility to elevate the towers, all that would be required is to jack the tower up as much as 20 feet and install the leg extensions.

For additional data, ask for item U-302, using the coupon on page 85.

No-jumps, lower stocks with MIF mounting plates

MALLEABLE Iron Fittings Co., Branford, Conn., announces the MIF line of transformer mounting plates, for direct pole mounting of 75 kva and 100 kva single phase and 75 kva and 112½ kva three phase EEI-NEMA standard transformers; also for older style transformers where lug spacings match the slots in these plates.

Among the special features of the basic design of MIF mounting plates are: (1) broad wing design with long horizontal lug slots permit mounting of transformers with wide range of lug spacing, reducing inventory to a minimum; (2) channel back assures best fit on any diameter pole and large area pad making contact with pole minimizes penetration caused by overturning forces; (3) extra long

vertical slots help overcome errors due to drift in drilling bolt holes in pole; (4) serrated reinforcing ribs prevent bolt heads from turning as nut is tightened—and make these plates completely jump-proof.

All plates are one-piece malleable iron castings with integral reinforcing ribs at points of high stress, and all are hot dip galvanized.

Greater safety, better appearance and lower installation costs are the advantages claimed. Cross arm installations are eliminated; however, some types can be mounted on 4-in. wide horizontal or 3-in. wide vertical steel members, as well as on most cluster mounting brackets. Plates can be attached to transformers in store room, work area or field and no special tools are required.

For additional data, ask for item U-303, using the coupon on page 85.

Narrow trench digger eliminates hand labor

A NEW TRENCH DIGGER called the Pow-R-Spade which completely eliminates the need for hand labor in digging narrow trenches for water, gas, electric, telephone and lawn sprinkling systems underground service lines has been introduced by Stampings Inc., 1017 Mound St., Davenport, Iowa.

The Pow-R-Spade digs a 3-inch wide trench to any depth up to 24 inches. It features specially designed removable cutting blades that are

self-cleaning even in wet soil and deliver the dirt on each side of the trench without lumps or clods for easy back-fill.

Designed for complete one-man operation the Pow-R-Spade can be controlled, handled and transported to and from job locations by one man. According to the manufacturer, it reduces digging time by 80% to 90% over slow hand and spade labor. Under actual tests in Illinois bluff clay the Pow-R-Spade dug an 18-inch trench 500 feet long in only 1½ hours.

A self-contained unit the Pow-R-Spade needs no other vehicle for power. It has a well-known standard 4 cycle gas engine. All moving parts, with the exception of the wheels, are equipped with sealed ball bearings which never require lubrication. Wheels are equipped with zerk

new CAROL EXTENSION "CORDSETS"

for top performance • longer life

A SUBSIDIARY OF Penn-Texas

Carol®

NEMA

CAROL CABLE COMPANY

Division of The Crescent Company, Inc.
Pawtucket, Rhode Island

Available in both red and black, Carol Cordsets stand up under all working conditions, inside or out. Packaged in heavy-duty storage cartons that are clearly labeled and long-lasting.

Carol Cordsets come in a *complete* line of seven different lengths and in two gauge sizes, to meet *every* demand. All attachments *molded on* for long life.

fittings. The entire machine is shipped completely assembled.

The Pow-R-Spade is pulled backward by the operator for easy control and requires no wind-up guide ropes or cables. It can dig right up to building foundations and make right angle bends or round corners as desired.

Now widely used in the bottled gas industry for bulk tank installations, the Pow-R-Spade has a wide range of application where narrow trenches are required.

For additional data, ask for item U-304, using the coupon on page 85.

Lag screws cut own threads, wood fibres unruptured

A TWIST-DRIVE lag screw, capable of being hammered in for its entire length, and requiring wrenching only for removal, is now being marketed by the Oliver Electrical Manufacturing Co., of Battle Creek, Mich., and Pittsburgh, Pa.

According to the manufacturer, the screw cuts its own threads as it is driven, twisting its way without rupturing wood fibres, a definite help in preventing wood rot.

A small, round projection on the lag screw head absorbs hammer

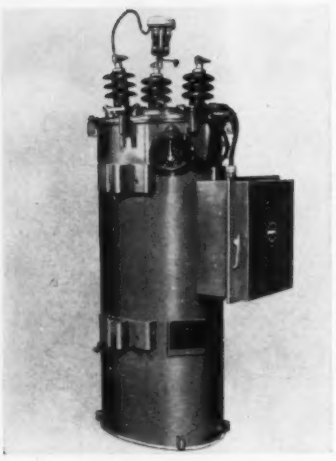
blows, keeping the head of the screw from being so damaged or distorted as to prevent the later use of a wrench.

All Oliver Electric warehouses now stock the new Twist-Drive screw in both ½" x 4" and ½" x 4½" sizes, with other sizes available when production quantities are required.

For additional data, ask for item U-305, using the coupon on page 85.

L-M 32-step regulator in 3 voltage classes

A POLE TYPE, single-phase, voltage regulator—produced by Line Material Co. Milwaukee 1, Wis., operates over the range ± 10% in 32-5/8% steps. Incorporating externally adjustable limit switches, this Type RSD regulator can operate at 160% rated current at a 5% limit setting. The new regulator is available in three voltage classes—2500, 5000, and 7620 volts—for application on circuits rated 2400 through 7200 volts delta or 2400/4160 through 7960/13800



volts wye. Load current ratings, depending upon voltage class, are 25, 50, 75, 100, 150, and 200 amperes.

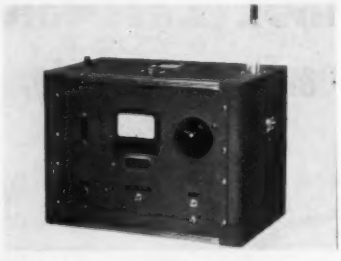
L-M's round-wound core and coil assembly and motor-driven tap changer are suspended on the cover of the Obround tank. Light weight and low bending moment are advantages of the Obround design. A valve type lightning arrester protects the series winding. The large, easily read position indicator with drag hands, a drag hand reset button, and limit switch adjustment knobs has position scales graduated in per cent.

The regulator control of Class 1 accuracy may be integrally or remotely mounted. It features a line drop compensator, adjustable integrating time delay, adjustable voltage level, contact-making voltmeter, and an operation counter.

For additional data, ask for item U-306, using the coupon on page 85.

New a-c hypots are portable or mobile

THE FIRST of a new line of portable and mobile a-c Hypots has been announced by Associated Research, Inc., Chicago, manufacturers of electrical testing instruments. The Model



4300 is a new portable bench type designed for testing plastics, other insulating materials, and equipment requiring test potentials to 30,000 volts a-c at 1 kva.

This new Hypot has an input of 115 volt, single phase 50-60 cycle a-c, with a continuously variable output voltage from 0-30,000 at 1 kva intermittent. It incorporates a 4½" rectifier type meter calibrated 0-30 kv, and connected directly across the high voltage output so that readings are of the actual test voltage applied irrespective of transformer regulation. Other features include A.R.I. leakage light, with standard setting at 5 milliamperes; continuously variable output voltage control; and dry type transformer construction to reduce weight.

The model 4301, 30 kv at 1 kva, is also available. This unit is especially designed for rack and panel mounting, and consists of a relay rack mounting control panel, which is connected to the power unit by 10 feet of connecting cable.

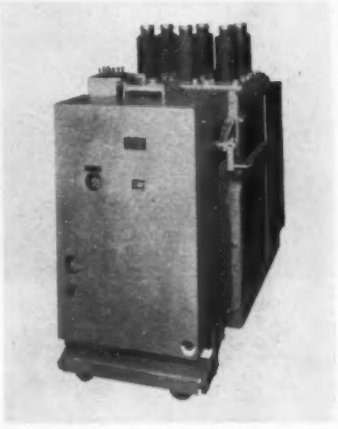
Model 4300 is currently being stocked by Associated Research, Inc., 3758 W. Belmont Ave., Chicago 18, Ill. For more information call, wire, or write for Bulletin 5B or Data Sheet 4-10.4 - 4300.

For additional data, ask for item U-307, using the coupon on page 85.

Stored-energy mechanism runs magne-blast circuit breakers

A STORED-ENERGY mechanism to operate magne-blast circuit breakers with metal-clad switchgear has been announced by General Electric Co., Medium Voltage Switchgear Department, Philadelphia.

The new equipment, which receives its energy from a small oper-



ating motor, is suited for general application on industrial and electric utility power systems. It is available in voltage ratings from 4.16 to 13.8 kv, and interrupting ratings from 150 mva to 750 mva inclusive.

Ideal for installations where it is desirable to provide only a limited source of a-c or d-c closing power, the stored energy mechanism makes it possible to dispense with a relatively large operating battery or control power transformer and closing rectifiers which would otherwise be required.

Tests have proven that the stored energy mechanism when operating a

1945

THE FIRST . . . **FISHER-PIERCE PHOTOELECTRIC LIGHTING CONTROL**

. . . THE LATEST

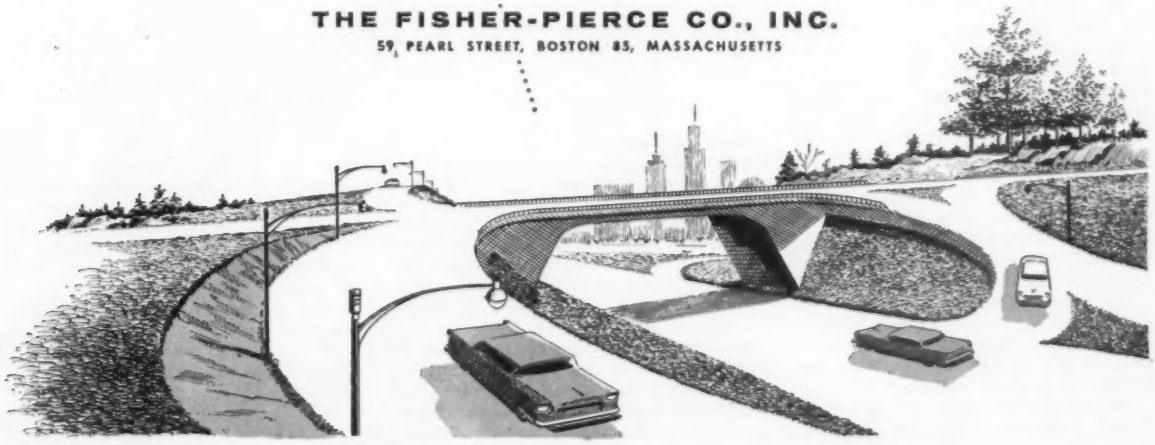
1957

The year World War II ended, The Fisher-Pierce Company began work with utility engineers to develop photoelectric controls. Automatic, dependable switching of street lighting circuits when illumination was needed, regardless of time of day, season or weather, was the fundamental idea. The Series 61300 was the first of five different, major groups of F-P controls that have followed.

The experience has proved valuable to Fisher-Pierce and customers alike. Backed by an organization of more than 650 people, F-P today offers photoelectric lighting controls for all purposes . . . extensive sales and engineering services . . . research, development and production facilities to solve specific photoelectric/electronic equipment problems you may have. Your inquiry about F-P products, who uses them, and how you may use our development facilities for your own electronic equipment requirements, is welcomed.

THE FISHER-PIERCE CO., INC.

59½ PEARL STREET, BOSTON 85, MASSACHUSETTS



magne-blast breaker will surpass the mechanical life requirement of 10,000 operations specified by industry standards, according to General Electric.

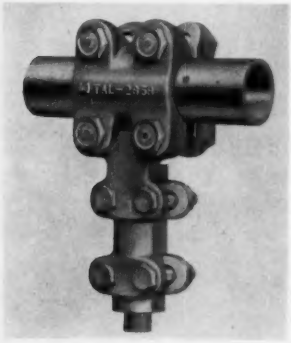
Breakers equipped with this mechanism will operate in existing up-to-date metal-clad equipment interchangeably with either a-c or d-c solenoid operated breakers.

For additional data, ask for item U-308, using the coupon on page 85.

TAL aluminum tee connector features large contact area

THE TYPE TAL is a new aluminum tee connector designed and manufactured by Southern States Equipment Corp., Hampton, Ga.

The TAL features recessed self-retaining bolt heads for single-



wrench assembly and extra-large areas of contact engagement. The body of the connector is heat-treated aluminum and bolts are 24S-T4 aluminum.

For additional data, ask for item U-309, using the coupon on page 85.

Type S cable support allows double racking

THE REDESIGNED Type S rack, manufactured by T. J. Cope, Inc., 3rd and Walnut Streets, Collegeville, Pa., is most effective in heavy manhole, vault and shaft installations as a support for cable.

The arm will tilt to any angle of the cable and the coupling arrangement is designed to permit double racking. The uprights are made of 3 in., 4.1 lb. steel channel. Bolt holes are centered between each arm slot. The arms are cast from malleable iron and are easily removable without disturbing arms or cables above or below. Racks are available with from 2 to 6 holes in each arm. Overall rack lengths range from 1 ft., 4 in. to 3 ft., 4 in. with arms available from 5 in. to 18 in. long.

Uprights and arms are available in hot galvanized finish. Porcelain supports are also furnished, in diameter sizes of 1¼ in. and 2½ in. The underlips hold them securely.

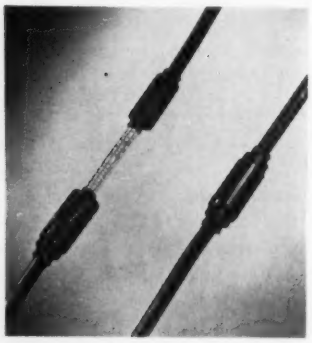
For additional data, ask for item U-310, using the coupon on page 85.

Protective cover for wire and cable splices

A UNIQUE polyethylene protective cover for wire and cable splices is being distributed by Plastic Engineering and Sales Corp., Fort Worth, Texas. The protector needs no tape or resin for a permanent, watertight seal which can be installed in only fifteen seconds. It will accommodate various types of compression connector splices and insulated cable sizes from #6 through #2.

The splice protector is molded in two halves which sleeve tightly together over the splice. Special "O-Ring" action between the two halves improves the seal, and the flexible polyethylene grabs the cable firmly at either side of the splice insuring lasting protection.

The cover takes no winding of tape or application of resins to give a neat attractive seal with no holes or bare spots and with nothing to unwind or rot. It can be installed in fifteen seconds compared with three minutes if tape or conventional protection is used. The protector cuts down on inventory requirements because it is adaptable to several sizes of wire. If the connection needs to be broken, the polyethylene protector is easily salvaged. The excellent dielectric properties of poly-



ethylene offer further insulating benefits.

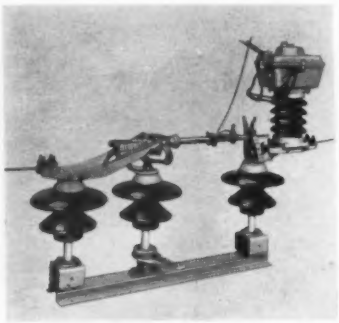
The protector is molded by Plastic Engineering and Sales Corporation from Spencer Chemical Company's "Poly-Eth" polyethylene.

For additional data, ask for item U-311, using the coupon on page 85.

New 600-ampere oil interrupter

A 600-AMPERE oil interrupter, to be mounted on new or existing vertical-break air switches, is now manufactured by Line Material Industries, McGraw-Edison Co., Milwaukee 1, Wis. The Type PLL interrupter is an accessory to Type PV, horizontal-mounted switches rated at either 23 kv or 34.5 kv. It is capable of interrupting or picking up load currents equal to the full continuous-current rating of 600 amperes.

The PLL interrupter consists of an oil-filled unit housed in a porcelain insulator and a rod to shunt the current through the interrupter while the main switch blade is being disconnected. As the switch blade rises, it engages a trip lever, causing the contacts within the unit to separate under oil at high speed. The switch



blade completes its rise to the fully open position carrying with it the bypass rod.

All NEMA and AIEE standards for load interrupting devices of this type have been met. Addition of the oil interrupter to existing PV switches will not change the electrical clearances, the phase spacings, or the excellent performance under adverse ice or corrosion conditions.

For additional data, ask for item U-312, using the coupon on page 85.

Five strengths available in new Type M guy strand

A LOW COST, high performance line of guy strand called Type M has been introduced by Copperweld Steel Co., Frick Building, Pittsburgh, Pa.

Selling at lower prices, the company reports, Type M results from Copperweld research developments making it possible to meet strength specifications with smaller diameter wires, and also from new guy strand production techniques which appreciably reduce the cost of manufacture. Type M utilizes wires having a heavy copper sheath inseparably molten-welded to an alloy steel core.

Type M strand is currently offered in five strengths: 3-wire strand in strengths of 2,200 and 4,000 pounds; 7-wire strand in strengths of 6,000, 10,000 and 16,000 pounds. In every strength it is pliable—easy to handle. It can be readily bent, served, moused or clamped—and the molten-weld gives full assurance that the copper covering will not crack, flake or peel.

The strand is put up in easy-to-handle coils of 250, 500 and 1,000 feet, depending on the size. Reels of 2,500, 5,000 and 10,000 feet are also available.

For additional data, ask for item U-313, using the coupon on page 85.

WHAT

BLACKBURN

HAS

UP

ITS

SLEEVE!

Blackburn Compression Service Entrance Sleeves Feature

- Body of highly conductive aluminum that fits all standard compression tools. Can be used for all combinations of aluminum ACSR and copper conductors.
- Bores of each tube are filled with CONTAX, a mineral base grease with metallic and abrasive particles held in suspension. It has an ASTM drop point of 549° F.—improves conductivity—prevents corrosion.
- Solid metal barrier between bores assures even distribution of CONTAX all around conductors when crimps are made.
- Push conductor through thin wall, color coded caps—no need to remove them before inserting conductor—they do not interfere with installing die. Colors will not run or fade. Sizes cover a wide range of conductor combinations.

Available at Electrical Wholesalers Everywhere.
Wire or write for bulletin on Blackburn Compression Fittings.

JASPER BLACKBURN CORPORATION 35 MADISON ST. • ST. LOUIS 6, MO. • PHONE MAIN 1-2821

New, revised estimating tables continued in this issue

A NEW SERIES of estimating tables, completely revised in the light of more recent jobs and experience, are presented in this issue and will appear from month to month in forthcoming issues. These electrical estimating data sheets cover labor only and are arranged alphabetically with the basic material headings as a title for each tabulation.

Labor units given in these tabulations are based on a minimum of interference during work progress. The averages listed do not provide for abnormal job conditions, and any such abnormal conditions will require adjustments by the user, based on his experience.

The work units covered by each table are composed of one or more separate but closely related operations necessary for the complete installation of a particular basic item of electrical equipment. These operations associated with the basic material are described at the bottom of each table.

Most of the electrical estimating tabulations follow the same form. Column 1 at the left shows the size of the material to be installed. The second column from the left gives the time required to install the material, and it should be noted especially that this "productivity" column may be based on individual units or in the case of cable or conduit on units of 100 feet or 1,000 feet. The abbreviations "Ea." for each, "C" for hundreds, and "M" for thousands in Column 2 indicate the basis of the labor hours.

Columns 3 to 13, from the left, give the actual labor costs in dollars per unit of installation, at various hourly wage rates.

When calculations are being made for an hourly wage rate that doesn't correspond to any of the rates listed in Columns 3 to 13, the user may multiply the number of hours in Column 2 by 100 and this will give the labor cost based on an hourly wage rate of $1 per hour. By multiplying this by the hourly wage rate that actually applies in the user's locality, the exact labor cost of the operation may be obtained. Labor costs obtained in this way will be for units, hundreds of feet, etc., as given in heading of Column 2 of the table.

The labor units covered by the tables represent direct job labor costs and do not include delivery of material to site, engineering, estimating, or any other indirect cost.

As will be noted, some of the electrical estimating tabulations to be given will be for independent operations, such as excavating, backfilling, etc. These are included for use in preparing estimates on work of a special nature not covered under a specific table heading.

Tables will appear in alphabetical order.

CABLE "SERVICE ENTRANCE METALIC SHIELD"

BASED ON 20' PER SERVICE — WOOD MTD.

SIZE NO. CONDRS.	HRS "C" Ft.	LABOR COST PER FT. AT FOLLOWING RATES $1.25	$1.50	$1.75	$2.00	$2.25	$2.50	$2.75	$3.00	$3.25	$3.50	$3.75
8/2	8.1	.101	.122	.142	.162	.192	.203	.225	.243	.262	.284	.304
6/2	9.1	.114	.137	.159	.182	.205	.228	.25	.273	.296	.319	.341
4/2	10.2	.128	.153	.179	.204	.23	.255	.281	.306	.332	.357	.383
8/3	9.4	.118	.141	.165	.188	.212	.235	.259	.282	.306	.329	.353
6/3	10.2	.128	.153	.179	.204	.23	.255	.281	.306	.332	.357	.383
4/3	12.8	.16	.191	.224	.256	.288	.32	.352	.384	.416	.448	.482
2/3	13.5	.169	.203	.236	.27	.304	.338	.371	.405	.439	.473	.506
		MASONRY MOUNTED .135										
8/2	9.	.113	.135	.158	.192	.203	.225	.248	.27	.292	.315	
6/2	10.2	.128	.153	.179	.204	.23	.255	.281	.306	.332	.357	
4/2	11.4	.143	.171	.20	.228	.257	.285	.314	.342	.371	.399	
8/3	10.8	.135	.162	.189	.216	.243	.27	.297	.324	.351	.378	
6/3	11.6	.145	.174	.203	.232	.261	.29	.319	.349	.377	.406	
4/3	13.6	.17	.204	.238	.272	.306	.34	.374	.408	.442	.476	
2/3	15.2	.19	.228	.266	.304	.342	.38	.419	.456	.494	.532	

E-102-B

LABOR: Includes stripping cable, drilling entrance hole, installing cable and strapping.

3-57

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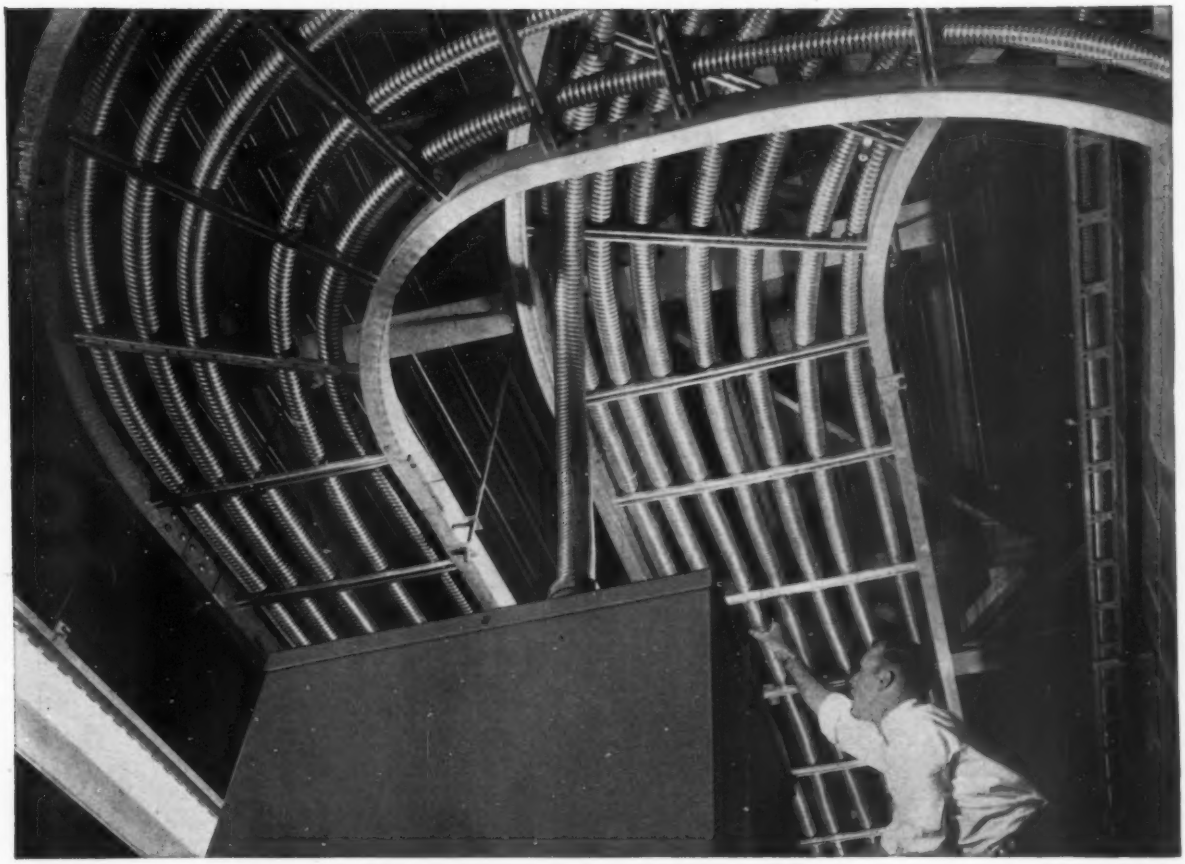

Handle more jobs — speed up installations with General Electric

INTERLOCKED ARMOR CABLE SYSTEMS

You can increase your job capacity with General Electric interlocked armor cables because your crew can install complete power distribution systems faster than with old conventional wiring methods. These highly flexible cables can be pulled easily around corners and over beams, in long unbroken runs, both indoors and out. The supporting racks, baskets, or troughs are low in cost and easily erected. Where cable splicing is necessary, a simple mechanical joint does the job.

Furthermore, these G-E interlocked armor cable systems eliminate the need for detailed engineering layouts and prefitting—enable you to handle more jobs in your work schedule.

Three types of General Electric interlocked armor cable cover most applications:

1. Varnished-cambric type, 600-5000v.—for general-purpose duty in dry locations.
2. Varnished-cambric type with special protective polyvinyl chloride jacket under the armor, up to 15kv.—for *both* interior and exterior locations above grade and in moist atmospheres.
3. Super Coronol* Geoprene* type—for wet and dry locations, up to 15kv.—can be run directly in surface troughs.

General Electric interlocked armor cable is also available with thermoplastic, silicone rubber, and asbestos insulations, and with galvanized steel, aluminum, and bronze armor. All can be supplied with polyvinyl chloride covering over the armor (in any of several colors) for corrosive areas or circuit identification.

*Registered Trade-mark General Electric Company

For more information, write for your copy of "G-E Interlocked Armor Cable." Address: Section W196-360, Wire & Cable Department, General Electric Company, Bridgeport 2, Connecticut.

Progress Is Our Most Important Product

GENERAL ELECTRIC

SERVICE ENTRANCE CABLE (NON-METALLIC)
ON WOOD

BASED ON 20 FT. PER SERVICE

SIZE NO. CONDUCTORS	HRS. PER C FT.	LABOR COST INSTALLED PER FT. AT FOLLOWING RATES										
		$1.25	$1.50	$1.75	$2.00	$2.25	$2.50	$2.75	$3.00	$3.25	$3.50	$3.75
12/2	6.0	.075	.09	.105	.12	.135	.15	.165	.18	.195	.210	.225
10/2	6.3	.079	.095	.11	.126	.142	.158	.173	.189	.205	.221	.236
8/2	7.4	.093	.111	.129	.148	.167	.185	.214	.222	.241	.259	.278
6/2	8.4	.105	.126	.147	.168	.189	.21	.251	.252	.273	.294	.315
4/2	9.5	.119	.143	.166	.19	.214	.238	.261	.285	.309	.333	.356
12/3	6.6	.083	.099	.116	.132	.149	.165	.182	.198	.215	.231	.248
10/3	7.4	.095	.111	.129	.148	.167	.185	.204	.222	.241	.259	.278
8/3	8.7	.109	.131	.152	.174	.196	.218	.239	.261	.283	.305	.326
6/3	10.0	.125	.15	.175	.20	.225	.25	.275	.30	.325	.35	.375
4/3	11.6	.145	.174	.203	.232	.261	.29	.319	.348	.377	.406	.435
2/3	12.6	.158	.189	.221	.252	.284	.315	.347	.378	.41	.441	.473

E-101-B

LABOR: Includes stripping cable, drilling entrance hole, installing cable & strapping.

SERVICE ENTRANCE CABLE - NON METALIC - MASONRY MOUNTED

BASED ON 20 FT. PER SERVICE

SIZE NO. CONDRS.	HRS. "C"	LABOR COST PER FT. INSTALLED AT FOLLOWING RATES										
		$1.25	$1.50	$1.75	$2.00	$2.25	$2.50	$2.75	$3.00	$3.25	$3.50	$3.75
12/2	6.6	.083	.099	.116	.132	.149	.165	.182	.198	.215	.231	.248
10/2	6.9	.086	.104	.121	.138	.155	.173	.19	.21	.224	.242	.259
8/2	8.1	.101	.122	.142	.162	.182	.203	.223	.243	.263	.284	.304
6/2	9.2	.115	.138	.161	.184	.207	.23	.253	.276	.299	.322	.345
4/2	10.2	.128	.153	.179	.204	.23	.255	.281	.306	.332	.357	.383
12/3	7.3	.091	.110	.128	.146	.164	.183	.201	.219	.237	.256	.274
10/3	8.1	.101	.121	.142	.162	.182	.203	.223	.243	.263	.284	.304
8/3	9.5	.119	.143	.166	.19	.214	.238	.261	.286	.309	.333	.356
6/3	10.7	.134	.161	.187	.214	.241	.268	.29	.321	.348	.375	.401
4/3	12.2	.153	.183	.214	.244	.275	.305	.336	.366	.397	.427	.458
2/3	13.4	.168	.201	.235	.268	.302	.335	.369	.402	.436	.469	.503

E-101-B

LABOR: Includes stripping cable, drilling entrance hole, installing cable and strapping.

Electrical Estimating—III

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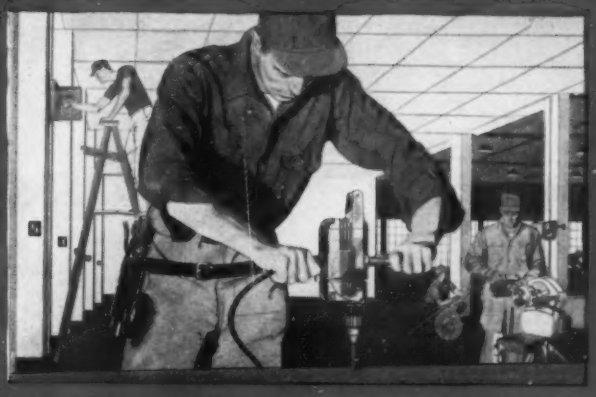
Production rates rise and employee relations improve with adequate ventilation . . . from Graybar.

The most complete selection of lighting units and G-E lamps available . . . from Graybar.



Modern tools speed the work on production lines or in the shop. Select, and order . . . from Graybar.

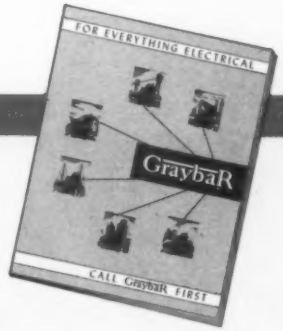
Planned power distribution . . . for flexibility in meeting present and future power needs . . . from Graybar.

For anything electrical . . . call Graybar first

Always call Graybar for anything and everything electrical. Through Graybar you and your customers have available over 100,000 electrical items, locally or through a nationwide network of warehouses. Ready to help you on any problem concerning lighting, ventilation, electronics and communication are Graybar Specialists.

The Graybar representative who calls on you, and Graybar "inside" personnel who back him up, can provide accurate catalog and quotation information on products of the world's leading manufacturers in every field of electricity. Further, Graybar is completely owned by its operating and retired personnel. Thus every Graybar man you deal with is vitally interested in seeing that your electrical needs are well and promptly served.

Next time you or your customers need anything electrical, large or small – rely on Graybar. 76-73



Send for a copy of "For Everything Electrical", a 28 page 2 color brochure which tells in digest form how Graybar's nationwide facilities are geared to serve every electrical need.

CALL **GraybaR** FIRST FOR

GRAYBAR ELECTRIC COMPANY, INC., 420 LEXINGTON AVENUE, NEW YORK 17, NEW YORK, IN OVER 130 PRINCIPAL CITIES

News of the industry

edited for Southern readers

Distributor discount policy revised by GE

A REVISED distributor discount policy described as "encouraging a halt to an increasing trend by electrical wholesalers toward brokerage-type operations" will be put into effect March 31 by the Circuit Protective Devices Department of the General Electric Co., Plainville, Conn.

In announcing the new policy, Robert C. Hanna, manager-marketing, explained that under the department's current discount structure a distributor running a brokerage-type operation is able to purchase at the same discount as distributors who carry full inventories and therefore perform a full distributor function.

"The new policy," Hanna said, "will compensate more equitably those distributors who are fulfilling their traditional warehousing functions."

In effect, the policy will allow all distributors an appreciable discount advantage on orders shipped to stock over orders shipped direct to customers, Hanna explained.

He described the problem facing his department as one which encompassed virtually the whole electrical industry. "Many distributors," he added, "have gradually surrendered their historic warehousing responsibilities. This means that eventually the manufacturer might be forced to expand his own warehousing facilities to meet drop-shipment delivery dates.

Hanna said he believed the wholesaler has a responsibility to his customers as well as to the manufacturer in providing this vital stocking function. "When a distributor surrenders this responsibility," stated Hanna, "it seems to me he also ought to surrender the privilege of enjoying the same discount rates available to stocking distributors."

New contracting bill before Congress soon

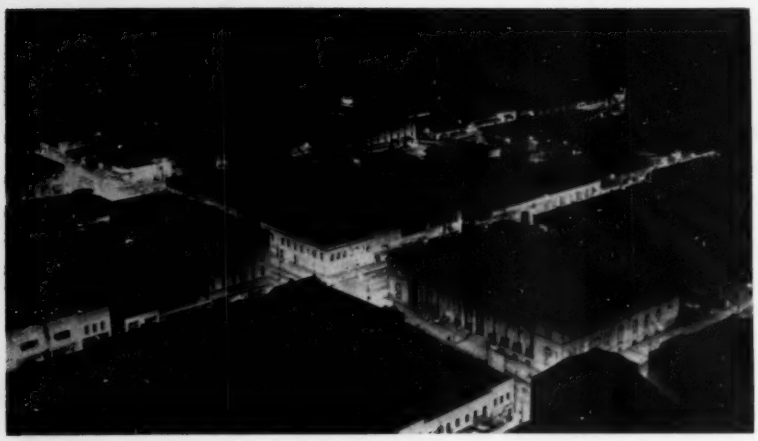
THE COUNCIL of Mechanical Specialty Contracting Industries, Inc., instructed its counsel to develop proposed legislation designed to meet all legitimate objections to the Federal Construction Contract Act which failed by a narrow margin of enactment at the last Congress.

The Council has been reviewing provisions of this measure intensively for the past several weeks in an effort to recommend the most practical and effective means of lessening the unfair trade practices of bid shopping and bid peddling on federal public works. It is expected that the revised measure, requiring listing by the prime contractor of mechanical specialty subcontractors on federal public works, will be ready for introduction in Congress in a few days. Several leading congressmen have indicated a desire to sponsor this legislation.

Haley-Stewart Corp. bought by Atlantans

ESTABLISHED 37 years ago, the Haley-Stewart Electrical Corp., one of the oldest lighting firms in the south, has been bought by a group of Atlantans, headed by Harry Gerson, president of the company. The other officers are Herbert Blount, treasurer, and Maurice Rubinstein, secretary. All of the officers have been identified with the lighting fixture business for many years.

A special planning department for architects and builders will offer personalized service on all types of fixtures and installations. Newest types of lighting ideas, including floor and table lamps, are on display in the modern new showrooms recently completed. Haley-Stewart is located at 116 Luckie Street, N. W., at the corner of Luckie and Cone Streets.



DRAMATIC EFFECT OF GOOD STREET LIGHTING—This unusual night view of downtown Winston-Salem, N. C., shows channels of light from G-E Form 400 mercury vapor luminaires dividing the black mass of buildings into individual shapes and forms. Duke Power Company has installed these units as part of the city's over-all relighting program.

Chance acquires line equipment company

A. B. CHANCE Co., manufacturer of power and communication line equipment, has a contract to acquire the American Crossarm and Conduit Company and subsidiaries of Chicago, it has been announced.

F. Gano Chance, president and chairman of the board of the Missouri firm, said the transaction will involve an exchange of Chance common shares for all American Crossarm and Conduit stock.

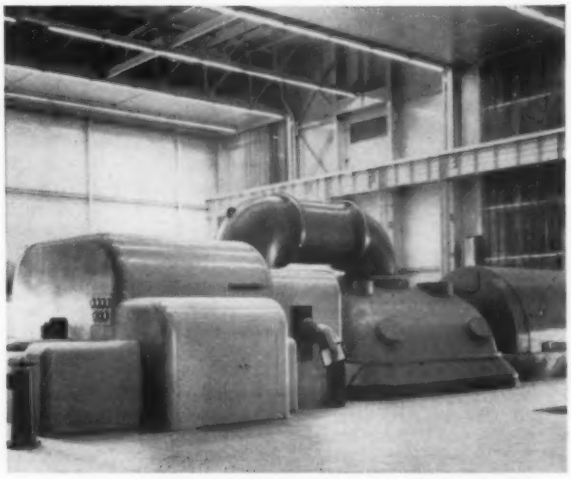
American Crossarm and Conduit produces crossarms, braces, and other wooden components for pole line construction, while Chance is a leading manufacturer of pole line equipment, including the hardware used with crossarms and in pole guying.

Nelson D. Stoker, now president of American Crossarm and Conduit, has indicated he will devote

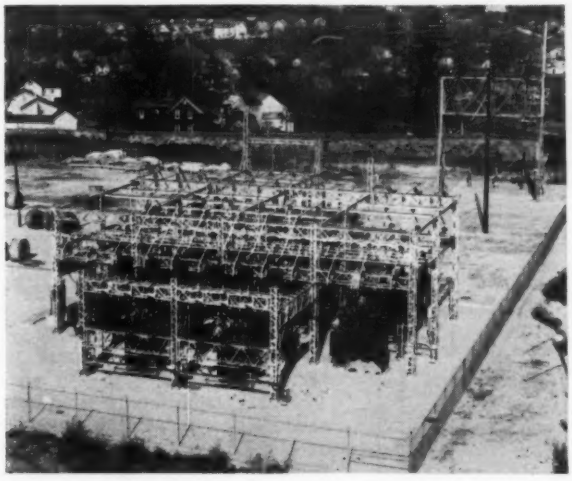
How Bell System private line communications serve the power industry

Bell System private line channels help streamline Ohio Edison operations 4 ways

1. **Continuous metering** and load control of Ohio Edison's interconnected electric system is centered at the Company's central dispatching office in Massillon. Extensive use is made of Bell System circuits in this system.



2. **Private line telephones** form an important link between power plants (like the Niles plant, above) and the Massillon dispatching center, permitting close control of operations. The Edison Company serves more than 550,000 customers.



3. **Bell System circuits** for remote metering and control give the Akron division dispatcher an up-to-the-minute picture of conditions at substations in his area. Similar circuits also provide supervisory control over substations in certain other areas served by the Company.

4. **Audible indicating** enables Ohio Edison dispatchers to pick up the telephone, dial certain unattended substations and learn from a tone signal the existence of trouble at that particular substation. This system provides an additional safeguard for service continuity.

Bell System communications can work for you just as they do for Ohio Edison. Call your Bell Telephone Company business office. A representative will be pleased to study your communications needs.

BELL TELEPHONE SYSTEM

PRIVATE LINE TELEPHONE • PRIVATE LINE TELETYPEWRITER CHANNELS FOR: DATA TRANSMISSION • REMOTE METERING AND CONTROL • TELEPHOTOGRAPH • CLOSED CIRCUIT TV

Again!

Porcelain Products introduces a Brand New Concept ...SWITCH BOXES of FIBER GLASS

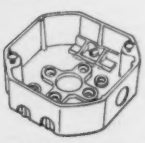
- Corrosion Resistant
- Insulating
- Strength
- Economical
- Flame Proof

No. 9311

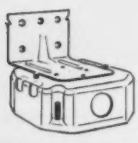
Plus...

these other fiber glass reinforced plastic (FRP) outlet boxes.

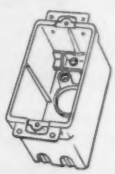
Another addition to Porcelain Products' growing line of boxes is this new fiber glass reinforced polyester switch box. The remarkable qualities of FRP make possible this fully insulated, corrosion and flame resistant switch box that is fully rugged enough to withstand abnormally rough handling. Because the box itself is an insulator, grounding on many circuits is not necessary. Its inherent resistance to corrosion makes it ideal for application in farm buildings, industrial plants, or wherever there is contaminated or moist atmosphere. Write today for complete information!



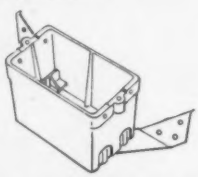
No. 9314-C, 4" Octagon box, has standard round knockouts . . . available with or without FRP clamps.



No. 9314-H Octagon Box, furnished assembled with hanger bracket. Also available with or without clamps.



No. 9311-E, FRP Switch Box with mounting ears for old work. Standard with FRP clamps. No. 9311-ENC without clamps.



No. 9311-H with hanger bracket for new work. No. 9311-HNC without clamps.

ELECTRICAL PORCELAIN SINCE 1894

63 years

Porcelain Products, Inc. PP INC.

FINDLAY, OHIO

his time to other business interests. Frederick A. Masterson, present vice-president and secretary, will become president of the firm which Chance plans to operate as a wholly owned subsidiary. Russell E. Paulson is treasurer.

Manufacturing plants of American Crossarm and Conduit and its subsidiaries are located in North Kansas City, Mo.; Schiller Park, Ill.; Minneapolis, Minn.; Danville, Pa.; and Gainesville, Fla.

A. B. Chance Company has plants in Centralia, Pittsburgh, St. Louis and San Francisco. Subsidiaries include A. B. Chance Co. of Canada, Ltd., Toronto, and Porcelain Products, Inc., Parkersburg, West Va., and Carey, Ohio.

Southern District, AIEE meets in Jackson, Miss.

A REPORT on earth satellites and a paper on the computation of rocket flight will be among the features of the Southern District Meeting of AIEE, April 3-5 in Jackson, Miss., at the Heidelberg Hotel. The Southern District includes the states of Mississippi, Tennessee, Kentucky, Virginia, North Carolina, South Carolina, Alabama, Georgia, Florida, southern Louisiana and the northwestern tip of Arkansas.

Reports and technical papers also will be presented on communications, transmission and distribution, metals and insulated cables, computers, transformers, protective devices, chemical industry, power generation, telemetering, microwave radio systems, and system engineering.

R. D. Yarbrough, general chairman, will get the meeting underway with an introductory message which will be followed by addresses of welcome by Mississippi Governor J. P. Coleman and Jackson Mayor A. C. Thompson. M. S. Coover, AIEE President, will address members at the opening day luncheon.

Student paper competition, social activities, inspection trips and special activities for the ladies will round out the meeting program.

Inspection trips will be made to: Mississippi Products Co., Rex Brown Steam Electric Station of Mississippi Power & Light Co., Vickers, Inc., Armstrong Cork Co., and Southern Bell Telephone Building.

A dinner dance, luncheon and hospitality hour will be included in the general social activities and the ladies will be offered a variety of sight-seeing trips, a bridge and canasta luncheon and a coffee hour each morning.

N. L. Stampley is vice chair-

4 EXCLUSIVE REASONS WHY...

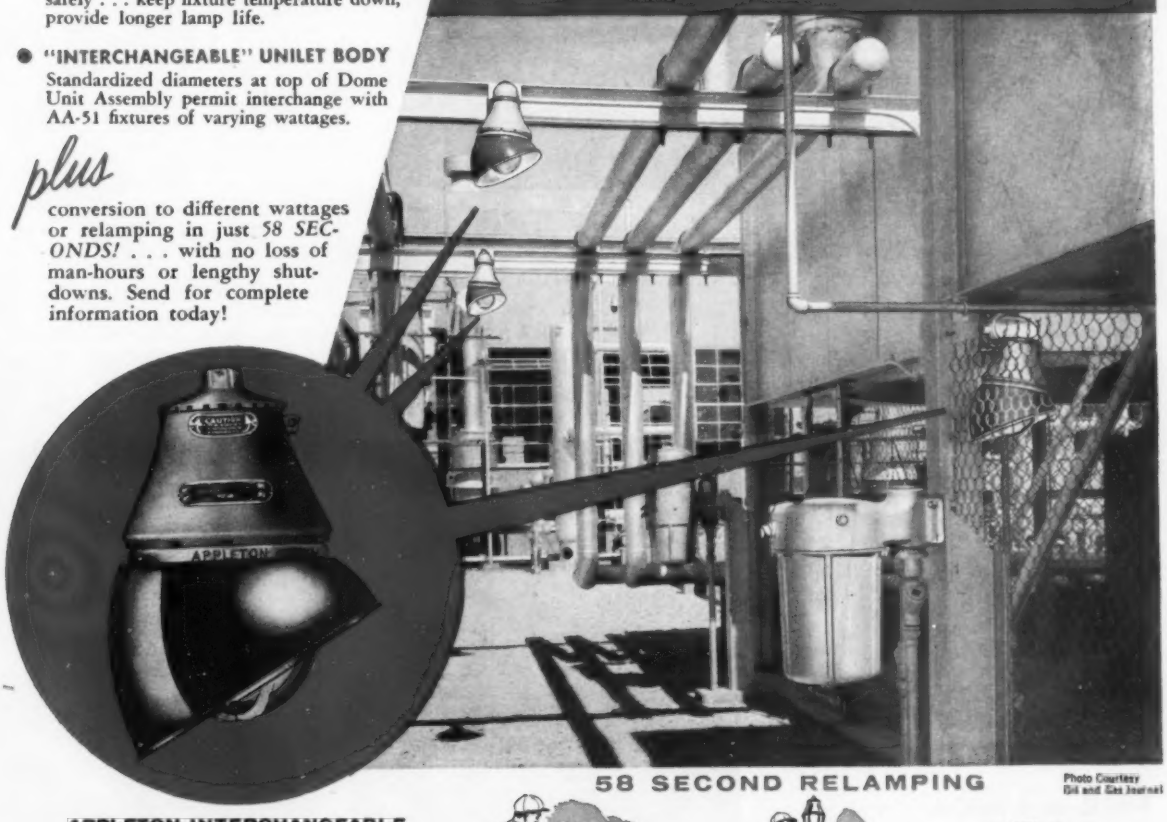
APPLETON

vented Explosion-Proof Fixtures are BETTER!

- **"FLAME-TIGHT" CONTACT CHAMBER**
  Exclusive safety chamber prevents explosions even when fixture is serviced with current on! APPLETON *Series AA-51 Vented Explosion-proof Fixtures* offer the positive protection required for hazardous areas.
- **"FULL-CIRCLE" VENTING**
  Porous metal interior and specially designed hood dissipate heat evenly and safely . . . keep fixture temperature down, provide longer lamp life.
- **"INTERCHANGEABLE" UNILET BODY**
  Standardized diameters at top of Dome Unit Assembly permit interchange with AA-51 fixtures of varying wattages.

plus

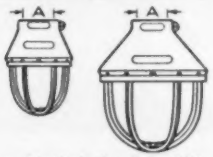
conversion to different wattages or relamping in just *58 SECONDS!* . . . with no loss of man-hours or lengthy shut-downs. Send for complete information today!



58 SECOND RELAMPING

Photo Courtesy Oil and Gas Journal

APPLETON INTERCHANGEABLE UNILET BODY FEATURE



Note how identical diameters "A" on Dome Assemblies allow quick interchange of fixtures with different wattages.

Series AA-51 stand-by units are ready at an instant's notice for relamping . . . with handles attached in advance.

Only a screw driver is needed to change units . . . and ONLY 58 SECONDS to climb ladder, change unit and descend!

Cleaning fixtures, changing burned out lamps can safely be attended to at bench . . . preventing costly shut-downs.

APPLETON ELECTRIC COMPANY
1754 Wellington Avenue • Chicago 13, Illinois

Sold Only Through Selected Wholesalers

Also Manufacturers of:

Industrial Lights

Automatic Reclites

Malleable Iron Unilet Fittings

"ST" Series Connectors

Outlet Boxes

Rely on **APPLETON** *. . . the standard for better wiring*

man of the meeting, J. R. Burnie, secretary, C. A. Rogillio, treasurer and R. W. Braswell chairman of the publicity committee.

Kansas City group holds annual meeting

OFFICERS for the coming year were elected recently at the 45th annual meeting of the Kansas City Electrical Association. William Carter, Anaconda Wire and Cable Co., was elected president and C. M. Anderson, General Electric Co., was named secretary-treasurer.

On the board of directors are the two most recent past presidents, Don D. Davis and C. E. Barnickel; Larry Bray, Graybar Electric Co.; John Doxsee, Bert Clark Co.; K. G. Gillespie, Jenkins Music Co.; E. E. Goodwin, Westinghouse; Joe Gorman, Continental Electric Co.; Karl Koerper, K. C. Power & Light Co.; B. G. Kollenborn, Westinghouse; Marvin Paulin, K. C. Power & Light Co.; Pearl A. Scott, Central Technical Institute; J. R. Brooks, Westinghouse.

Elected as vice-presidents were: E. K. Hartenbower, KCMO Broadcasting Co., Radio and TV Broadcasters; John Weir, Economy Sales Co., Mfg. Agents and Representatives; E. D. Shiffler, G. E. Supply Co., Appliance Wholesalers; J. E. Launder, Independent Electric Machy. Co., Maintenance Repair and Service; A. Buddy Nelson, Jenkins Music Co., Appliance Dealers; Frank Cipolla, Monarch Electric, Electrical Contractors; John A. Dunn, G. E. Supply Co., Electric Supply Wholesalers; G. E. Messer, General Electric Co., Electrical Manufacturers; M. A. Havenhill, K. C. Power & Light Co., Utilities; James N. Blair, Blair Radio and TV, Television Service Dealers.

FAEC and NECA install officers

OFFICERS for the coming year were installed recently at a joint session of the North Florida Chapter of the National Electrical Contractors Association and the Jacksonville Chapter of the Florida Association of Electrical Contractors.

Both chapters will be headed in 1957 by J. Dandelake, of Miller Electric Co., as president, and by W. S. Binckley as manager.

The North Florida Chapter, NECA, elected Ralph Ramis of Stinson Electric Company as vice-president. Taylor Sams of Southern Electric Company is treasurer. Directors are George Gormly of Jacksonville Service Company and T. L. Wrenn of Wrenn Electric Company. J. M. Joseph of Modern Electric Contracting Company will serve on the board of governors. Ted Dietsch was employed as assistant manager and Director of Education.

The Jacksonville Chapter, FAEC, installed the following: Martinez Baker of Miller Electric Co., vice-president; J. M. Joseph of Modern Electric Contracting Co., governor; T. L. Wrenn of Wrenn Electric Co., state director. Local directors are Paul Lemon of Lemon Electric Co., Ernest Lea of E. F. Lea Electric Co., and Dixie Caroll, Jr., of D. Caroll Electric Co.

West Texas-New Mexico NECA elects officers

AUBREY E. RUMMEL has been appointed to replace resigning Edward Strout in the post of secretary-manager of the West Texas-New Mexico Chapter of NECA.

W. J. Budwine, Service Electric Co., Carlsbad, succeeds E. L. Tarver, Tarver Electric Co., Lubbock, Texas, as president.

C. M. Anderson, American Electric Co., Lubbock, will be on the board of governors and L. O. Neill, Neill Electric Co., is treasurer. Director at large will be Glenn O. Brown, Brown Electric Co., Odessa, Texas.

Chapter division chairmen are Armitt W. Harral, Artesia Electric Co., Artesia, N. M.; Henry P. Mathieu, Industrial Electric, Lubbock; Theron A. Gamblin, Basin Electric, Midland, Texas; and O. L. Embrey, Embrey Electric, Roswell, N. M.

New Orleans officers elected for 1957

THE NEW ORLEANS Electrical Association recently elected A. B. Paterson, Jr., to replace retiring president C. Espy Reed. Frank Prattini was elected to the post of executive vice-president.

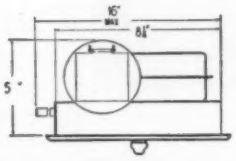
In addition the following were elected for the coming year: Arthur Wachter, vice-president, Wholesalers, Utilities, Mfgrs.; Stanley B. Reinherz, vice-president, Appliances; Fred E. Lindsey, vice-president, Electrical Contractors; Geo. C. Howell, Jr., vice-president, Air Conditioning and Ventilation; Leonard Estorge,

A STROKE OF THE PEN forms one of the largest firms in the electrical industry—the new McGraw-Edison Co. Max McGraw (left), president of McGraw Electric Co., watches as Henry G. Riter III, president of Thomas A. Edison, Inc., signs papers transferring assets of the Edison Company to the new organization. Mr. Riter, recent president of the National Association of Manufacturers, continues as president of the Thomas A. Edison Industries. Mr. McGraw becomes president and chief executive officer of the new McGraw-Edison Co., which has combined sales of over $250,000,000.

FASCO BATHROOM VENTILATOR
...Absolutely the Trimmest!
NEW-DIFFERENT-BETTER

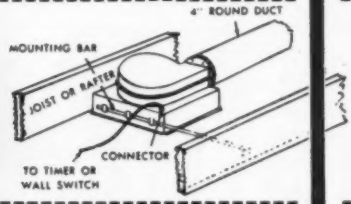
MODEL 650

TRIM Construction— Only 5" High



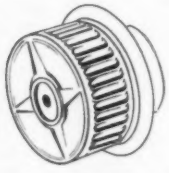
Fits inside 6" joists without protruding . . . leaves ample space for insulation blankets between joists. The exclusive lower 5" depth also permits installation in shallow beamed cathedral ceilings or in bathroom walls framed out to 5" thickness.

TRIMS Installation Costs



No header necessary! Square housing is nailed directly to side of joist . . . adjustable support bracket extends to the next joist—3 nails and the job is done! This new unit is ideal for remodeling as well, as it installs neatly through a hole in the ceiling without dismantling. This easier-to-install feature trims installation costs by virtually eliminating time-consuming assembly or alignment problems.

TRIMS All Other Models with More CFM per Dollar



The low unit cost plus the increased efficiency you get gives all other models a sound trimming. The large diameter squirrel cage blower wheel with special housing and entrance venturi delivers more air and gives excellent pressure characteristics. Its oversize motor is rubber mounted for powerful yet quieter operation. Circular louvers in grille give uniform draft-free air intake pattern through 360°.

Meets all FHA requirements for inside bathroom ventilators. 5 Year Guarantee. UL Listed.

EXTRA PROFITS ARE YOURS WITH THE COMPLETE FASCO LINE of:

- KITCHEN VENTILATORS and HOODS
- WINDOW and OSCILLATING FANS.

WRITE FOR CATALOG

To: FASCO INDUSTRIES INC. 87 Augusta St., Rochester, N. Y.
Gentlemen:
Please send complete information and specifications on the new FASCO 650 BATHROOM VENTILATOR.

NAME_____
ADDRESS_____
CITY_____ ZONE____ STATE_____
TYPE OF BUSINESS_____

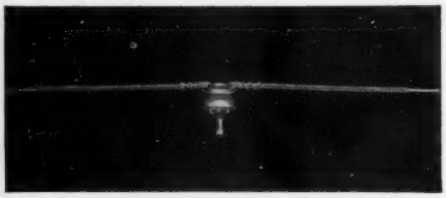
FASCO Industries, Inc. ROCHESTER 2, N. Y., U. S. A.

TURN MINUTES
INTO YEARS OF Protection
at the
vital points of overhead conductors

fine FANNER
SUPERFORMED ARMOR RODS
are easily applied . . . provide positive full-length grip and absolute uniformity of application

Fine Fanner SUPERFORMED Armor Rods offer the economical way for positive, lasting protection of overhead transmission and distribution lines. Their INSTALLED cost is so small compared with the service failures they prevent, it pays to install them at all points where vibration damage is likely to occur.*

Armor rods are easy to apply.



Completed armor rod installation.

Whenever you need accessory items for overhead conductors you'll do far better by standardizing on fine Fanner SUPERFORMED products. Each product in the Fanner SUPERFORMED line is carefully engineered and accurately manufactured. Highest quality materials provide long service life. Special packaging insures safe delivery and protection in storage. With all their extra features, Fanner SUPERFORMED products cost no more than ordinary products.

Armor rods and other products in the SUPERFORMED line are fully described in current literature. Write today for your copy.

*Where spans are short and tensions low, use Fanner SUPERFORMED lineguards.

Licensed for use under patent No. 2,275,019.

THE FANNER MANUFACTURING CO.
Electrical Products Division
BROOKSIDE PARK • Established 1894 • CLEVELAND 9, OHIO
Telephone: SHadyside 1-6000

Fine Fanner Superformed

AGENTS AND DISTRIBUTORS IN PRINCIPAL CITIES

TAP ARMOR PLASTIC FANNGUARDS PATCH RODS FANNGRIPS

vice-president, Radio and Television; W. E. Clement, publicity; E. H. Mowen, secretary, and A. M. Brewer, treasurer.

The executive committee elected for 1957 is composed of W. P. Massey, J. M. Wyatt, G. E. Brown, E. N. Avegno, T. R. Magee, Ned Breitenmoser, G. W. Flach, J. Ben Habans, C. K. Naumann, and C. Espy Reed, ex-officio.

Industrial expansion continues in Texas

ECONOMIC expansion of the Southwest is accelerating at such a rapid rate that new firms moving into the region for the first time are having to revamp their schedules of expansion almost before completion of their original plans.

An example is the new manufacturing plant which General Cable Corporation is putting up at Bonham, Texas, in the north central Blacklands of the Lone Star State. J. R. MacDonald, the one-time high school football coach, who had rocketed in the industrial world to his post as chairman of the board and president of General Cable, gave top business leaders of Dallas a hint of things to come at a luncheon given him by W. W. Lynch, president of the Texas Power and Light Company.

After describing the Southwest as "the land of the future," Mr. MacDonald told the luncheon group:

"Originally we had planned to produce only telephone cables at Bonham. But our area survey showed the great potentialities and we expanded to include utility cable and wire also.

"Our plant at Bonham, now under way, will cover about 95,000 square feet and employ nearly 450 persons. Two years from now I hope I will be able to come back to this area and see growth that justifies doubling to 180,000 square feet."

General Cable, among the largest manufacturers of electric wire and cable in the world, did a volume business of $200,000,000 in 1956, according to Mr. MacDonald.

The Bonham plant, on a 30-acre area, is the 19th in General Cable's growing chain. It will be a facility of Alphaduct Wire and Cable Co.

Other electrical equipment manufacturing firms in the Dallas area report business increases ranging from 5 to 20 per cent, as the region continues to ride high on the crest of a commercial building boom. Most of the manufacturers are predicting that 1957 will be at least as good as 1956 and probably better, depending on

Get 3 Tanks (A Tank Per Phase)

Even on Outdoor Distribution Breakers

Don't be 1/3 Safe!

● Be completely safe! Buy breakers that offer positive protection for today's low reactance systems with their corresponding high fault currents. Three tanks, not just one, provide maximum protection.

Enjoy this big breaker type protection in outdoor distribution breakers at no extra charge. Other big breaker features include: AEIC-NEMA standardized control wiring; two vertical breaks per phase, using time-tested *Ruptor* devices; self-aligning, self-wiping tulip and bayonet contacts.

Ask for Bulletin 71B7946 for the complete story. Contact your nearby A-C office, or write Allis-Chalmers, Power Equipment Division, Milwaukee 1, Wisconsin.

Ratings: 14.4 kv, 100 and 250 mva

Ruptor is an Allis-Chalmers trademark.

ALLIS-CHALMERS

A-C ALLIS-CHALMERS

A-5146

Don't take OUR word for it....

LOOK TO YOUR OWN RECORDS

for proof of watthour meter performance!

For all the *facts* about watthour meter performance—how your meters stand up in actual service... how accurately they retain their calibration... how many are damaged by high voltage surges... how quickly and economically they can be put back into service... and what it costs to keep meters on the line—there's no source more reliable than the meter accuracy records of your own Meter Department. These unbiased records are kept for your information as a company executive.

Sangamo J2 Meters provide:

ACCURATE MEASUREMENT from the lightest loads to 100 amperes for the entire life of the meter.

HIGH INSULATION LEVEL to withstand high voltage surges without damage.

CORROSION-RESISTANCE for optimum performance in humid, salt-laden or corrosive atmospheres.

LIFETIME BEARING SYSTEM—proved by millions of Sangamo Meters in service.

PLUS SLOW SPEED! Only ten disk revolutions per minute at full nameplate rating... another reason why the J2 is your best investment in a watthour meter.

JM57-2

SANGAMO ELECTRIC COMPANY

SPRINGFIELD, ILLINOIS

the high cyclical construction industry.

Spokesmen report production is up at nearly all Dallas electrical machinery plants, with a "very healthy" market in electrical equipment sparking the boom.

Business at the Square D Company plant in Dallas in 1956 is reported to have been 7 per cent over the previous year, with no signs of a slowdown. Square D's optimism is matched by other makers of electrical equipment in the Southwest.

Federal Pacific Electric Company has moved into new quarters in the mushrooming Brook Hollow Industrial District of Dallas, increasing its floor space from 20,000 to 50,000 square feet.

Standard Electric Manufacturing Co., in Dallas, reports an increase of 1956 sales and output of approximately 5 per cent and company officials expects 1957 to be better.

Manufacturers appoint new representatives

CARY CHAPMAN and Co., Atlanta, Ga., has announced completion of an agreement with the Philco Corporation Industrial Division of Philadelphia to represent its products in the nine Southeastern states. The Company will mainly feature sale of Audipage, a new personal one-way communication system developed by Philco.

* * *

BOSTON Woven Hose & Rubber Co. has appointed Al Levin & Associates, Inc., 1200 S. Peters St., New Orleans, La., as sales representative for Bull Dog tape in Louisiana and Mississippi.

* * *

GEORGE L. GREEN, vice-president of Ainsworth Lighting Inc., Long Island City, N. Y., has announced the appointment of three manufacturer's representatives in the Southern territories.

T. A. Haish, 355 21st Ave., N.E., St. Petersburg, Fla., will represent the Ainsworth line in Florida. He was previously active in sales promotion of lighting fixtures in New Jersey.

Georgia and Eastern Tennessee will be represented by George L. Washington, 1541 North Decatur Rd., Atlanta 6, Ga. Mr. Washington has been operating as a manufacturers agent for the past three years. He was formerly district sales manager for Westinghouse.

Representing Ainsworth in Alabama will be William H. Neville, 516 American Life Building, Birmingham. Mr. Neville has been manufacturers agent for lighting equipment in Alabama for many years.

* * *

CHARLES M. FURMAN, Jr., & Associates, Charlotte, N. C., has been recently appointed factory representatives in the Southeast for Palmer Manufacturing Corp., Phoenix, Arizona.

Stocks of Palmer products are maintained in Southern Bonded Warehouse, Atlanta, Ga. The Georgia-Tennessee territory will be covered by Robert S. Martin, 575 Plum St., N.W., Atlanta, Ga.

The Carolinas and Virginia will be serviced out of the Charlotte office.

* * *

C. P. CLARE & Co., Chicago, relay manufacturers, announce the appointment of J. E. Joyner & Associates, Atlanta, as sales representatives in the four-state area of Georgia, Alabama, Mississippi, and Tennessee. J. E. "Buck" Joyner and associates Don Brassington and Harry A. Cole have a broad background of experience in relay application problems.

* * *

ELECTROMODE Division of Commercial Controls Corp., Rochester, N. Y., have announced the appointment of Meyer-Orens Company as sales representatives for their complete line throughout the Florida territory.

Bill Taylor **Eddie Solomon**

Both Alan Meyer and Perry Orens of the Meyer-Orens Company, have had many years experience handling Electromode products, having previously represented the manufacturer in New York, New Jersey, and western Pennsylvania. They have established office headquarters at 2732 North West 7th Street, Miami.

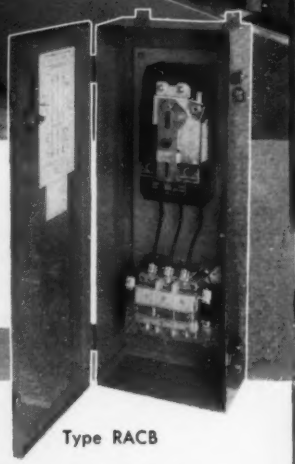
* * *

SUPRO LUX Manufacturing Co., Bronx, N. Y., announces the appointment of Richberger's, 278 South Front Street, Memphis, Tenn., as their factory representative for mid-south territory (Mississippi Valley and Gulf Coast). Richberger's, known throughout the mid-south, will carry the complete Supro Lux Slimline flourescent lamps line.

CO-OP EXPANSION—Deputy REA Administrator Fred H. Strong signs loan made to Talquin Electric Cooperative of Quincy, Fla. Standing, left to right, are Leon Weaver, co-op manager; William H. Eastman, director for REA in southeast; and P. W. Shelfer, a co-op director. The $1,450,000 loan will provide lines for 1,100 new customers.

YOU can count on ARROW•HART for ON-THE-JOB HELP

Arrow-Hart Type RACB Combination Starters At The Connecticut By-Products Company, Columbia, Connecticut



Type RACB

PROBLEM: To provide the best method of one-point control for electrically operated production equipment in a new plant . . . and to answer perplexing installation wiring questions.

The Arrow-Hart Distributor, Beacon Light & Supply Company, Hartford, Conn., called for ARROW-HART SALES ENGINEERING SERVICE. THE NEAREST ARROW-HART SALES ENGINEER PROMPTLY WENT DIRECT TO THE JOB.

SOLUTION: The A-H Sales Engineer analyzed the requirements and recommended Arrow-Hart Type RACB Combination Starters to save space and assure easy, fast installation and economical operation. Type TRA Reduced Voltage Starters were used to protect against line disturbances.

Equally effective on-the-job assistance is offered to all Arrow-Hart Distributors, Electrical Contractors and Plant Engineers confronted with perplexing problems. Simply write Dept. WLM, The Arrow-Hart & Hegeman Electric Company, 103 Hawthorn Street, Hartford 6, Connecticut, for complete information on ARROW-HART SALES ENGINEERING SERVICE.

ARROW AH HART

Quality since 1890

MOTOR CONTROLS · ENCLOSED SWITCHES
APPLIANCE SWITCHES · WIRING DEVICES

ARROW AH HART

APPOINTMENT of two new salesmen for Jules J. Dreyfuss' Sons, electrical factory representatives, has been announced by J. Jack Dreyfus.

Eddie Solomon will cover Louisiana, Mississippi and Western

Alan Meyer **Perry Owens**

Tennessee and be in charge of the New Orleans warehouse. Mr. Solomon was formerly with Circle-F Mfg. Co.

Bill Taylor, of Charlotte, will cover North and South Carolina. Mr. Taylor has been a salesman with Luxor Lighting Products, Inc., and Industrial Electronics.

Edwin F. Guth Company marks 55th anniversary

THE EDWIN F. GUTH Company lighting equipment manufacturers of St. Louis, Missouri, are enjoying their 55th business anniversary this year. Founder, namesake and Chairman of the Board, Mr. Edwin F. Guth, Sr., is still active in all important company decisions, and the company is now in the process of announcing Mr. Guth, Senior's latest invention, the Prismoid Gratelite, a new "reversible louver-lens" for use with Fluorescent and Slimline lamps.

In all, Mr. Guth has received 161 patents from the U. S. Patent Office during the company's existence.

Houston warehouse constructed for G-E

GENERAL ELECTRIC Supply Company has signed a long-term lease for a $500,000 office-warehouse building at 2425 Broad St., Houston, Texas. The building is now under construction on a site between the Gulf Freeway and Telephone Road, a rapidly expanding industrial-warehouse area of the Texas port city. GE will use the building for general office and warehouse facilities to serve as

distribution headquarters for South Texas and Southwest Louisiana, according to H. A. Warren, district manager.

Among the features of the building will be a recessed lighting system with spot and highlighting throughout the office, lunchroom, and display areas. GE is designing the lighting system as a "model" to be used in similar buildings. The building will contain 10,500 square feet of general office area and 60,300 square feet for warehouse and service facilities. It is on a four-acre site. There will be 1,000 feet of dock space and 47,000 square feet of outside parking area.

Virginia homes feature electrical heating

ONE THOUSAND homes to be built in Upper Warwick, Va., will feature built-in electrical bathroom heating units.

H. R. Taylor, vice-president and general manager of the Stoneybrooks Estates, planners and financiers of the 1000-unit home building project in Virginia. Mr. Taylor stated that the new homes, being built to sell from $13,600 to $50,000, will be erected by the Bilt-Rite and Capa Builders, of Newport News, Va. Markel Heetaires have been selected for the project.

Century establishes Southern branch office

TO BETTER serve the increased specialized lighting needs of the South, Century Lighting, Inc., of New York City, has established a new Southern Branch Office and Warehouse, at 1477 N.E. 129th St., North Miami, Fla.

In addition to application engineering assistance concerning the use of Century products, the new branch will carry stocks of many of the Century products. George Gill is manager of the new branch office.

Rayescent organization formed by Westinghouse

ESTABLISHMENT of an organization specifically for the development of electroluminescence as a new light source has been announced by the Westinghouse Lamp Division. The new organization will be concerned with commercial development and with both basic and applied research, according to F. M. Sloan, Westing-

NEW

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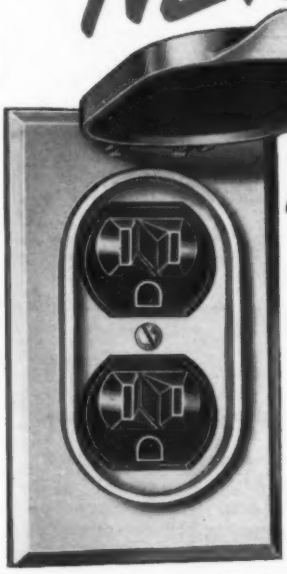

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GROUNDING RECEPTACLES

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ALSO *20* DIFFERENT

OTHER DUPLEX RECEPTACLES

When installation exposes receptacles to weather, moisture, etc., Arrow-Hart's line of duplex receptacles fill the need . . . up to 20 types with unique weatherproof plates. Plate is cast aluminum with spring lift-lid cover. A rubber gasket seals cover when closed; rubber mat under plate makes weatherproof seal between box opening and building wall. Write for data to The Arrow-Hart & Hegeman Electric Co., 103 Hawthorn St., Hartford 6, Conn.

HART-LOCK INTERLOCKING TYPE

XT-7580-WP

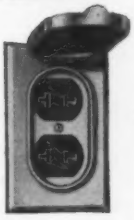
COMBINATION DUPLEX GROUNDING TYPE

5290-WP

XT-7540 WP

SPECIFICATION GRADE, TWO-WIRE TYPE

1913-WP



400-WP

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MOTOR CONTROLS • ENCLOSED SWITCHES
APPLIANCE SWITCHES • WIRING DEVICES

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house vice-president.

First discovered in 1936 by Georges Destriau, French scientist and Westinghouse consultant, electroluminescence provides a two-dimensional, area light source. Light is produced from a coating of phosphors on glass or metal panels when electrically energized. The new light source has been given the tradename "Rayescent" by Westinghouse.

Appointed to a new post is Carl F. Jensen, who has been named manager of "Rayescent" lighting. Heading the commercial engineering section will be George B. Saviers, who has been transferred from the Westinghouse Television-Radio Division.

Test lab constructed by Penn-Union Electric

WORK has been started by Penn-Union Electric Corp., Erie, Pa., on an enlarged test laboratory. The new laboratory will include the most modern equipment for the automatic programming of temperature and current tests for evaluating aluminum and copper connectors under current overload conditions. Resistances to one millionth of an ohm will be measured.

Salt spray, vibration, and tensile equipment, for testing the performance of conductor fittings under the most exacting conditions of service, will also be installed. Completion of the new laboratory is scheduled for February 1957.

Oklahoma G&E doubles office building size

OKLAHOMA Gas and Electric Company will soon double the size of its general office building in Oklahoma City by adding six stories atop the present structure, President Donald S. Kennedy recently announced.

Construction of the enlarged structure at Third and Harvey Sts., is expected to begin by June 1957, and will cost approximately one million dollars.

The decision to enlarge the general office ended a year-long study of company needs, in which several other sites and projects were considered and rejected.

Architectural lines of the new addition will differ only slightly from those of the old building. The exterior of the new portion will be of similar limestone.

The present six-story building was built and occupied in 1928. The original foundation provided for the present increase in height. Oklahoma Gas and Electric now occupies the entire building, housing additional office personnel in two other buildings in downtown Oklahoma City.

Dates Ahead

Mid-South Metermen's Assn., Annual Meter School, Univ. of Tenn., Knoxville, Tenn., March 25-29, 1957.

Oklahoma Utilities Association, Annual Convention, Tulsa Hotel, Tulsa, Okla., March 28-29, 1957.

National Electrical Contractors Assn., Fifth District Joint Meeting with IBEW, Oklahoma City, Okla., April, 1957 (Exact date not set).

Southeastern Electric Exchange, 24th Annual Conference, Boca Raton Hotel & Club, Boca Raton, Fla., April 1-3, 1957.

Edison Electric Institute, 23rd Annual Sales Conference, Edgewater Beach Hotel, Chicago, Ill., April 1-4, 1957.

American Institute of Electrical Engineers, Southern District Meeting, Heidelburg Hotel, Jackson, Miss., April 3-5, 1957.

Virginia Chapter, IAEI, Annual Meeting, Nansemond Hotel, Norfolk, Va., April 8-9, 1957.

Tennessee Chapter IAEI, Annual Meeting, Jackson Hotel, Nashville, Tenn., April 15-16, 1957.

Protective Relay Engineers, Tenth Annual Conference, A & M College of Texas, College Station, Texas, April 15-17, 1957.

South Carolina Chapter, IAEI, Annual Meeting, Columbia Hotel, Columbia, S. C., April 22-23, 1957.

American Institute of Electrical Engineers, 3rd Biennial Conference on Electrical Heating, Commodore Perry Hotel, Toledo, Ohio, April 23-24, 1957.

Alabama Chapter, IAEI, Annual Meeting, Thomas Jefferson Hotel, Birmingham, Ala., April 25-26, 1957.

Georgia Chapter, IAEI, Annual Meeting. (Tentative date: April 29-30, 1957—may be changed to coincide with Southern Section Annual Meeting in October.)

Florida Chapter, IAEI, Annual Meeting, Washington Hotel, Jacksonville, Fla., May 3-4, 1957.

Baton Rouge, George Welman, North Louisiana - East Texas, Texas, and Texas Gulf Coast Chapters, IAEI, Joint Meeting, Heidelberg Hotel, Baton Rouge, La., May 10-11, 1957.

Ellis Cannady Chapter, IAEI, Annual Meeting, Carolina Hotel, Raleigh, N. C., May 14-15, 1957.

National Association of Electrical Distributors, Annual Convention, Sheraton-Park and Shoreham Hotels, Washington, D. C., May 26-29, 1957.

National Electrical Contractors Assn., Third District, Hotel Roanoke, Roanoke, Va., May 27-29, 1957.

Edison Electric Institute, Annual Convention, Palmer House, Chicago, Ill., June 3-6, 1957.

Southern Section, IAEI, Annual Meeting, Dinkler Plaza Hotel, Atlanta, Ga., Oct. 14-16, 1957.

Florida Assn. of Electrical Contractors, Annual Convention and Trade Show, Soreno Hotel, St. Petersburg, Fla., Oct. 16-19, 1957.

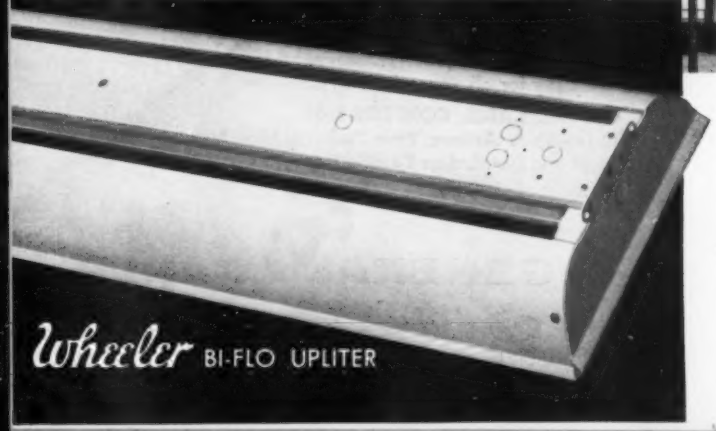
National Electrical Contractors Assn., Annual Convention, Cincinnati, Ohio, Nov. 13-16, 1957.

Wheeler

"PACKAGE PLAN" LIGHTING

the efficient, time-saving way to solve all your lighting requirements at one time!

Fluorescent — Incandescent — Specialized Lighting . . . most jobs require not just one but various combinations of these modern forms of industrial lighting. When you submit your requirements to Wheeler Reflector Company, one quote does it. No need to split your requirements or to locate sources for each type. One quote! One source! One standard of quality for over 75 years!



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DIVISION OF FRANKLIN RESEARCH CORP.

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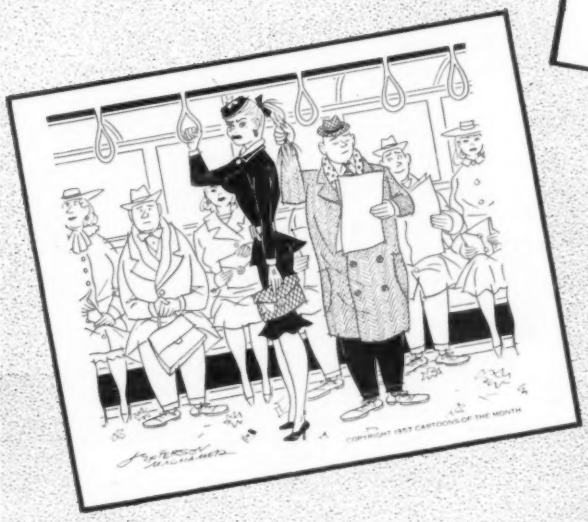

"I thought you might like to see the results of my ability with former companies, and why I think I'm suited for the job here"

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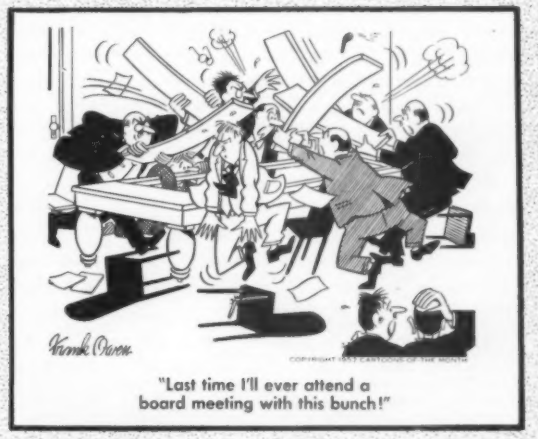

"Last time I'll ever attend a board meeting with this bunch!"

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Electrical Association of New Orleans. E. H. Mowen, Secretary, 921 Union St., New Orleans, La.

Peninsula Electrical Association. J. Russell Hopkins, Secretary, c/o Central Electrical Supply Co., Salisbury, Md.

The Electric Association of Kansas City. John S. McDermott, Executive Manager, Merchandise Mart Bldg., Kansas City 8, Mo.

St. Louis Electrical Board of Trade. Carl H. Christine, Secretary-Manager, 1221 Locust St., St. Louis 3, Mo.

Electric League of Chattanooga. Paul J. McMillian, Secretary, Sixth and Market Sts., Chattanooga 2, Tenn.

Electrical League of Norfolk. C. R. Hagamyer, Secretary-Treasurer, P. O. Box 605, Norfolk 1, Va.

Electrical Association of Richmond. C. F. Bennett, Executive Secretary, 205 West Grace St., Richmond 20, Va.

The Electric League of Charleston. Guilford C. Smith, Secretary-Treasurer, c/o Appalachian Electric Power Co., P. O. Box 1986, Charleston 27, W. Va.

Central West Virginia Electrical League, Inc. J. R. Waters, Secretary, P. O. Box 1392, Fairmont, W. Va.

UTILITIES

Southeastern Electric Exchange. John W. Talley, Managing Director, 303 Haas-Howell Bldg., Atlanta, Ga.

The Maryland Utilities Association. Robert L. Smith, Secretary, Frederick, Md.

Oklahoma Utilities Association. Kate A. Niblack, Secretary, Suite 2415, Oklahoma Biltmore Hotel, Oklahoma City 2, Okla.

Public Utilities Association of the Virginias. R. W. McKinnon, Executive Secretary, 5 Franklin Rd., SW, Roanoke 11, Va.

WHOLESALERS

Southeastern Electrical Wholesalers Association. M. L. Tice, Executive Vice-President, P. O. Box 176, Ben Hill, Ga.

National Association of Electrical Distributors. Arthur W. Hooper, Executive Director, 290 Madison Ave., New York 17, N. Y.

REPRESENTATIVES

Southeastern Electrical Manufacturers Representatives Club. Frank P. Bell, Secretary-Treasurer, 806 Peachtree St. NW., Atlanta 3, Ga.

Electrical Manufacturers Representatives Association, Inc. George E. Clements, Secretary, 722 Stevenson Lane, Towson 4, Md.

Electrical Manufacturers' Representatives of Virginia, Inc. C. F. Bennett, Secretary, 205 West Grace St., Richmond 20, Va.

CONTRACTORS

Florida Association of Electrical Contractors. L. L. Dick, State Manager, 620 Stovall Professional Bldg., Tampa 2, Fla.

Association of Independent Electrical Contractors. R. E. Neumann, Secretary, 704 Frenchmen St., New Orleans 16, La.

Electrical Contractors Association of Maryland. Charles L. Greer, Secretary-Treasurer, 404 North High St., Baltimore, Md.

Shelby County Electrical Contractors Assn. A. M. Scruggs, Sr., Corresponding Secretary, 58 Buntyn St., Memphis 11, Tenn.

National Electrical Contractors Association. Clint J. Harder, Secretary-Treasurer, 1200 18th St., NW, Washington 6, D. C.

NECA, Birmingham Chapter. Ernest W. Weir, Manager, P. O. Box 1781, Birmingham, Ala.

NECA, Gulf Coast Chapter. Frank M. Hawkins, Manager, 402 St. Michael St., Box 1003, Mobile, Ala.

NECA, Central Alabama Chapter. C. A. Dart, Manager, 212 Hunter Lane, Montgomery, Ala.

NECA, Arkansas Chapter. Earl G. Fisk, Manager, 809 N. W. 3rd St., Little Rock, Ark.

NECA, Washington, D. C. Chapter. Harry W. Kellams, Manager, 910 17th St., NW, Washington 6, D. C.

NECA, North Florida Chapter. W. S. Binckley, Manager, P. O. Box 3172, Jacksonville, Fla.

NECA, South Florida Chapter. Charles J. Powers, Manager, 2607 Flagler St., Miami 35, Fla.

NECA, Atlanta Chapter. George L. Peterson, Manager, 4234-5 Atlanta National Bldg., 50 Whitehall St., Atlanta, Ga.

NECA, Southeastern Industrial Chapter. K. D. White, 946 W. Peachtree St., NW, Atlanta, Ga.

NECA, South Georgia Chapter. R. A. Kobs, Manager, 3208 Hamilton Rd., Columbus, Ga.

NECA, Kansas Chapter. Charles W. Paige, Manager, 416 Central Bldg., Topeka, Kan.

NECA, Central Kentucky Chapter. Daniel N. Brock, Acting Manager, 706 Bank of Commerce Bldg., Lexington, Ky.

NECA, Louisville Chapter. J. C. Snyder, Manager, P. O. Box 1685, Louisville 1, Ky.

NECA, Southwest Louisiana Chapter. Herman T. Vallery, P. O. Box 5584, Drew Station, Lake Charles, La.

NECA, South Louisiana Chapter. Rudolph Viener, Jr., Manager, 831 St. Peter St., New Orleans 16, La.

NECA, North Louisiana Chapter. F. J. Evans, Manager, 753 Dalzell St., P. O. Box 1210, Shreveport, La.

NECA, Maryland Chapter. Robert L. Higgins, Manager, American National Bldg., Room 305, 204 North Liberty St., Baltimore 1, Md.

NECA, Central Mississippi Chapter. John C. Sullivan, Manager, 970 Milner Bldg., Jackson, Miss.

NECA, Greater Kansas City Chapter. John L. Rose, Manager, 2201 Grand Ave., Kansas City 8, Mo.

NECA, St. Louis Chapter. R. E. Vierheller, Manager, 4657 Hampton Ave., St. Louis 9, Mo.

NECA, Carolinas Chapter. D. L. Casey, Manager, P. O. Box 4056, Charlotte 4, N. C.

NECA, Western Oklahoma Chapter. Tom M. Rushing, Manager, 616 N. 5th St., Oklahoma City 3, Okla.

NECA, East Oklahoma Chapter. Horace Y. Strader, Manager, 1519 S. Boston St., Tulsa, Okla.

NECA, Chattanooga Chapter. W. C. Harris, Manager, 402 Chattanooga Bank Bldg., Chattanooga 2, Tenn.

NECA, Knoxville Chapter. W. G. Hoffman, 312 West Jackson Ave., Knoxville 24, Tenn.

NECA, Memphis Chapter. Raymond Calhoun, Manager, 170 Neil St., Memphis 12, Tenn.

NECA, Nashville Chapter. G. Paul Crowder, Manager, 1509 Laurel St., Nashville 4, Tenn.

NECA, Panhandle Chapter. John H. Burt, Manager, P. O. Box 2283, Amarillo, Tex.

NECA, Central Texas Chapter. Tom Clawson, Manager, P. O. Box 881, Austin, Tex.

NECA, Texas Gulf Coast Chapter. Ray P. Hayes, Manager, P. O. Box 2049, Corpus Christi, Tex.

NECA, Northeast Texas Chapter. L. E. Martin, Manager, 1923 McKinney Ave., Dallas 1, Tex.

NECA, El Paso Chapter. John E. Blaine, Manager, 310 San Francisco St., El Paso, Tex.

NECA, North Texas Chapter. C. E. Wann, Manager, Westchester House, Apt. 102, 554 South Summit, Fort Worth, Tex.

NECA, Southeast Texas Chapter. Charles Scholibo, Manager, 4218 Yoakum Blvd., Houston 6, Tex.

NECA, East Texas Chapter. Harry L. Wren, Manager, P. O. Box 1226, Kilgore, Tex.

NECA, West Texas-New Mexico Chapter. Edward Strout, Manager, 105 College Ave., P. O. Box 121, Lubbock, Tex.

NECA, South Texas Chapter. Frank R. Stewart, Manager, 774 East Locust St., San Antonio 12, Tex.

NECA, Rio Grande Valley Chapter. R. N. Cummings, Manager, 607 West 4th St., Weslaco, Tex.

NECA, Virginia Chapter. Richard R. Smouse, Manager, 203 Roslyn Hills Dr., Richmond 26, Va.

NECA, West Virginia-Ohio Valley Chapter. James E. Swan, Manager, 510½ C St., South Charleston, W. Va.

INSPECTORS

International Association of Electrical Inspectors. Headquarters, Charles L. Smith, Secretary-treasurer, 612 N. Michigan Ave., Chicago 11, Ill.

IAEI, Alabama Chapter. Hugh Roberts, Secretary-Treasurer, Alabama Power Co., 2100 South 21st St., Birmingham, Ala.

IAEI, Florida Chapter. R. H. Wellwood, Secretary-Treasurer 2605 11th Ave., NW, Bradenton, Fla.

IAEI, Georgia Chapter. W. S. Smith, Jr., Secretary, 713 Broad St., Augusta, Ga.

IAEI, Kentucky Chapter. E. H. Rueppel, Secretary-Treasurer, 201 Citizens Bldg., Louisville 2, Ky.

IAEI, George Weiman Chapter. J. Clifton Young, Secretary-Treasurer, 317 Baronne St., New Orleans 9, La.

IAEI, North Louisiana-East Texas Chapter. Kenneth D. Hightower, 1718½ Centenary Blvd., Shreveport, La.

IAEI, Mississippi Chapter. C. B. Grauer, Secretary-Treasurer, P. O. Box 1790 Jackson, Miss.

IAEI, Missouri-Kansas Chapter. T. McGinnis, Secretary-Treasurer, City Hall, Topeka, Kan.

IAEI, St. Louis Chapter. Nell W. Butteiger, Secretary-Treasurer, 7427 Canton Ave., University City 14, Mo.

IAEI, North Carolina Chapter. C. S. Whitaker, Secretary-Treasurer, City Hall, Durham, N. C.

IAEI, Oklahoma Chapter. T. C. Wier, 1907 W. 41st St., Tulsa, Okla.

IAEI, South Carolina Chapter. N. R. Darling, Secretary-Treasurer, P. O. Box 390, Columbia, S. C.

IAEI, Tennessee Chapter. R. E. Ward, Div. of Fire Prevention, 102 State Office Bldg., Nashville 3, Tenn.

IAEI, Texas Chapter. R. L. Payne, Secretary-Treasurer, 3303 Schley St., Dallas, Tex.

IAEI, Texas Gulf Coast Chapter. M. W. McRaven, Secretary-Treasurer, P. O. Box 1700, Houston 1, Tex.

IAEI, Southern Section. A. M. Miller, Secretary, 910 West 30th St., Richmond 25, Va.

IAEI, Virginia Chapter. A. M. Miller, Secretary, Treasurer, 910 West 30th St., Richmond 25, Va.

IAEI, West Virginia Chapter. H. L. Parks, Secretary-Treasurer, P. O. Box 626, Charleston, W. Va.

MOTOR REPAIR SHOPS

National Industrial Service Association, Inc. Fred B. Wipperman, Executive Secretary, 818 Olive St., St. Louis 1, Mo.

NISA, Southeastern Chapter. M. E. Assalone, Secretary, 235 NW 2nd Ave., Miami 36, Fla.

NISA, Electric Motor Service Association of the District of Columbia. John W. Lainhart, Secretary, 913 E, St., NW, Washington 4, D. C.

NISA, Louisville Chapter. W. C. Krauth, Secretary, 118 S. 1st St. Louisville, Ky.

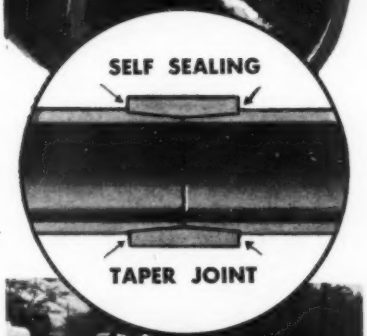
NISA, New Orleans Chapter. William Dreis, Secretary, 1517 Calliope St., New Orleans, La.

NISA, Mid-South Chapter. Murphy G. Miller, Secretary, 109 Jennings Ave., Knoxville 17, Tenn.

NISA, Southwestern Chapter. George Foshee, Secretary, 203 S. Main, Fort Worth 4, Tex.

NISA, Electric Club of West Virginia. O. E. Jenkins, Secretary c/o Guyan Machine Co., Logan, W. Va.

SMOOTH BORE!



Orangeburg Fibre Conduit Prolongs Cable Life

Protect cable sheath from abrasion and you prolong the life of underground cables, say utility engineers. Scoring of cable sheath creates "trouble spots" that shorten cable life.

That's where Orangeburg Fibre Conduit plays an important part in keeping cables healthy. Orangeburg's smooth bore, its low coefficient of friction minimize the danger of abrasion when cables are pulled in, as well as later on during cable movement. By protecting cable sheath from abrasion, Orangeburg Fibre Conduit adds years to cable life.

Orangeburg's impermeable wall and watertight joints protect cables from corrosive ground waters. Its nonmetallic material is strong, tough, resilient, long lasting.

And, remember, Orangeburg lays faster and at lower cost than other types of conduit. It is light in weight, easy to handle, easy to tool on the job. Spacers, bends, fittings, 5° bend sections and lightweight tapering tool, all combine to simplify installation.

Since 1893, records of long life have proved Orangeburg's durability and economy.

Orangeburg Fibre Conduit is distributed by Graybar Electric Company and General Electric Supply Company with branches and stocks in principal cities.

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Specified in new construction, they make homes more salable.
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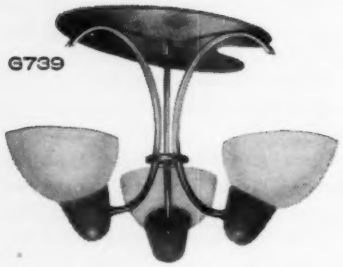
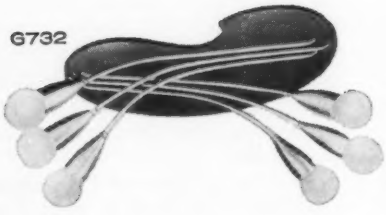
And you can have them immediately! Call for your Globe salesman. He will show you the complete new Spring line.

IT'S EASIER TO SELL GLOBE THAN TO SELL AGAINST IT!





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March, 1957

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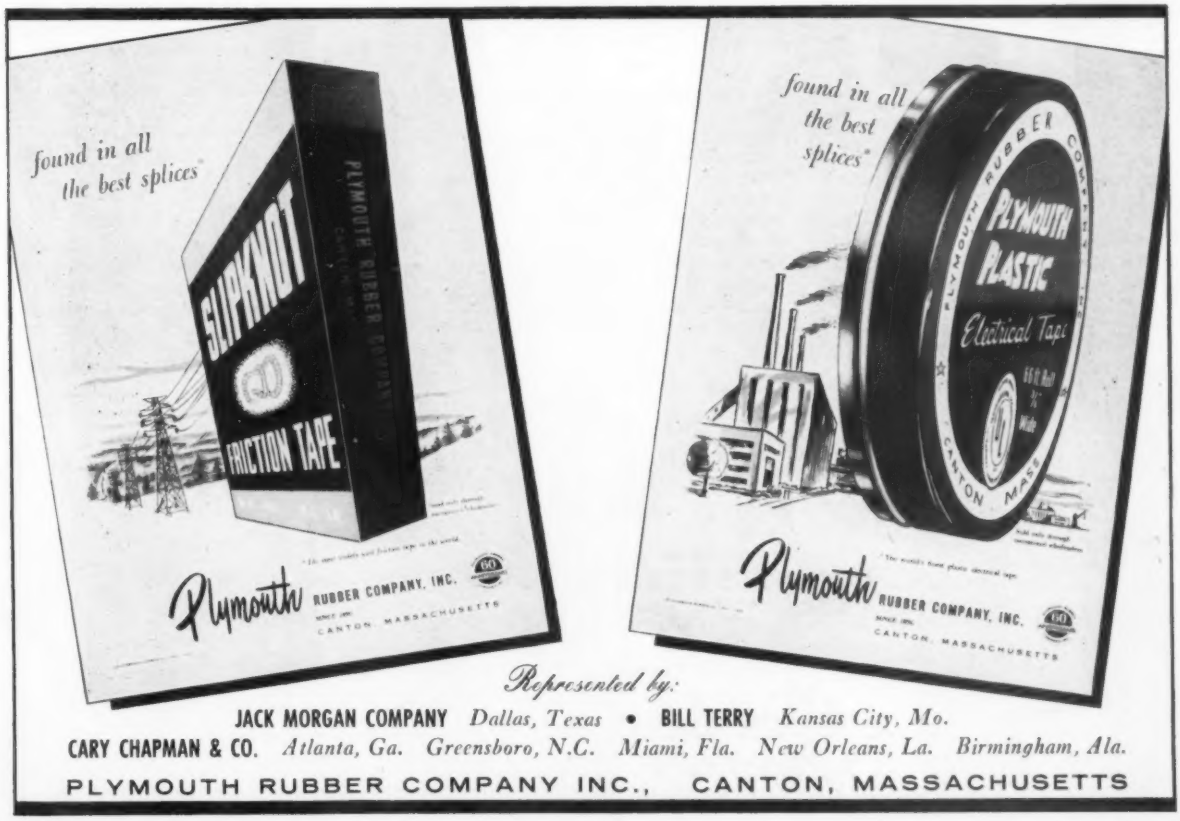
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News about people

Directors of **McGraw-Edison Company** have established the posts of chairman of the board and executive vice-president and elected three new members. The board's action was taken at a meeting recently in Chicago.

Named to the new post of chairman of the board was **Charles Edison,** chairman of the board of Thomas A. Edison, Inc., which merged with McGraw Electric on Jan. 2. Edison, son of the late inventor, Thomas A. Edison, formerly was governor of New Jersey and Secretary of the Navy.

Max McGraw continues as president.

Alfred Bersted, president of the Bersted Manufacturing Company division of McGraw-Edison and a vice-president of McGraw-Edison, was

Alfred Bersted

named to fill the post of executive vice-president.

New directors are former Gov. Edison, **Henry G. Riter 3rd,** president of Thomas A. Edison Industries, and **Albert R. Jube,** formerly a director of the Edison Co., chairman of the board of Collins & Aikman Corp.,

Charles Edison

and a partner of Chamberlin, Kafer, Wilds & Jube.

Bersted, who becomes the executive vice-president, began his career in the electrical industry as a toolmaker with his father's firm. The Bersted Manufacturing Company started the manufacture of appliances in 1921. In 1941, Bersted acquired the Manning-Bowman Co., also a manufacturer of electrical appliances, and in 1948 he merged with McGraw Electric. He has been in charge of all appliance divisions of McGraw Electric for the last three years.

Pittsburgh Reflector Co., manufacturers of fluorescent and incandescent lighting equipment for commercial, institutional and industrial uses, announces the appointment of **Ralph E. Smith, Jr.,** as advertising manager of the firm. He will be headquartered at the company's executive offices in Pittsburgh.

Since he became associated with the company in 1955 Mr. Smith has served as both Assistant and later

Ralph E. Smith

Sales Promotion Manager of the company. In his new capacity he will administer the advertising program of the company, working closely with 34 sales offices and over 1,000 distributors.

Mr. Smith holds a B. A. Degree from Duquesne University and an LLB from the University of Pittsburgh Law School.

Ebasco Services Inc., has announced the appointment of **G. Rogers Porter** as a consultant in the firm's sales and public relations consulting department.

Before joining Ebasco, Mr. Porter served as marketing counselor for Woman's Home Companion, coordinating the magazine's interests in the home appliance industry. He has also held key sales, promotion and advertising positions with Norge, General Electric, and other manufacturing concerns. Prior to World War II, he owned and published "The Appliance Journal," a trade magazine for the home appliance field.

K. R. (Ken) Way has been elected vice-president, charge of sales, of **Jasper Blackburn Corp.,** St. Louis manufacturers of electrical products. The announcement was made by

SAME 2/3
4 sizes—taking No. 4 screw to 3/8" lag
SAVE MONEY — JORDAN ANCHORS cost only 1/3 as much as the next best.
SAVE TIME — JORDAN ANCHORS are quickly installed . . . hold forever.
SAVE HEADACHES—Stronger tenite-aluminum JORDAN ANCHORS hold tight even when screw-heads break off.
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JORDAN INDUSTRIES, Inc., 2751 N. W. 75th St., Miami 47, Fla.
AND DO THE JOB BETTER WITH
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Give experience, territory and other lines carried. Reply to Box No. 723, ELECTRICAL SOUTH, 806 Peachtree St., N. E. Atlanta 8, Georgia.

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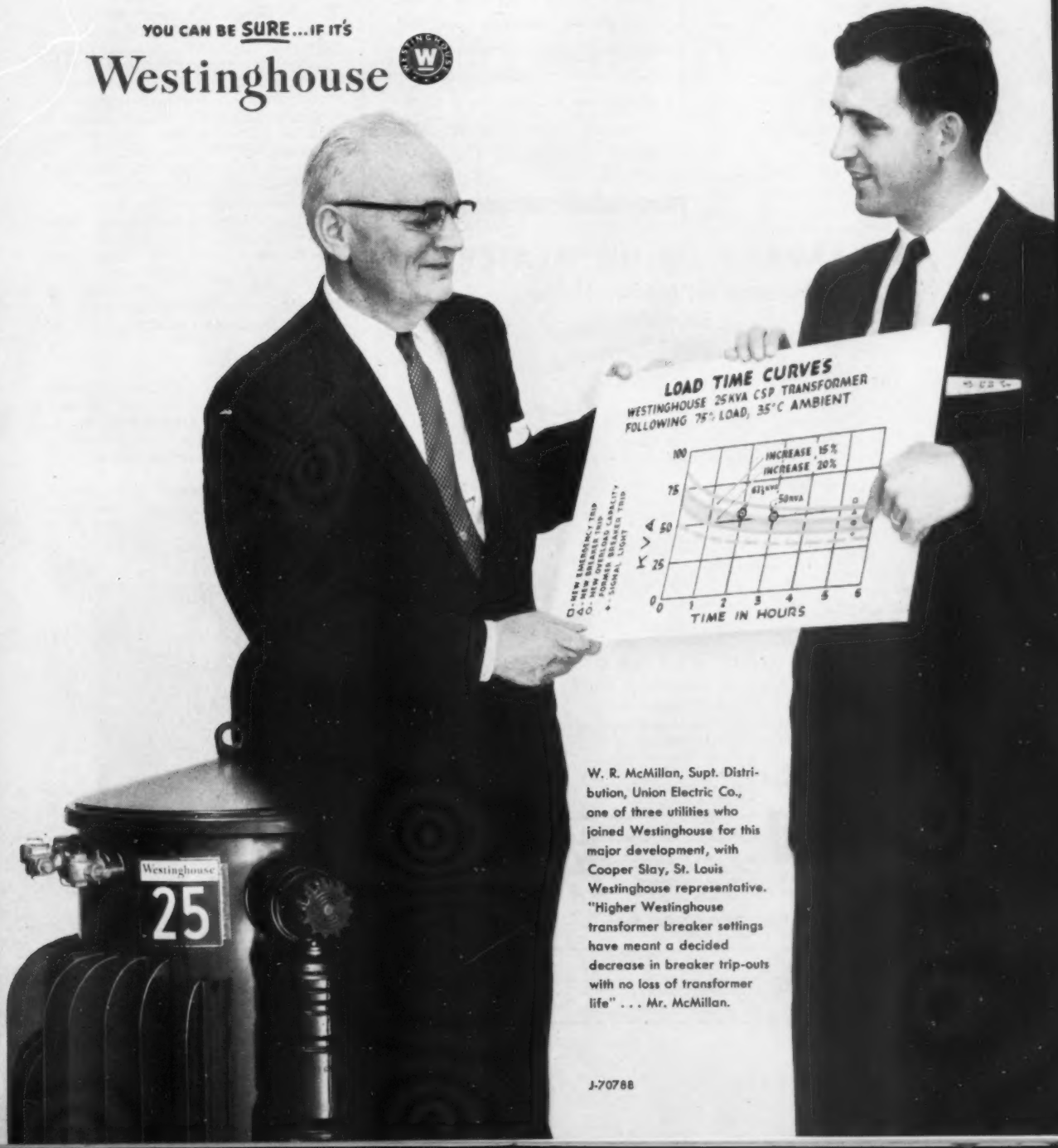
20% INCREASED OVERLOAD CAPACITY

in all new Westinghouse distribution transformers *without sacrifice of service life!* The evidence is several thousand Westinghouse transformers with increased breaker settings put on Union Electric's lines, many since 1954, without a single burnout.

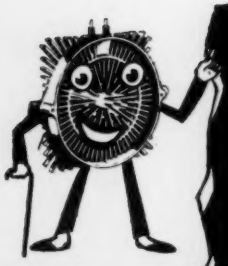
YOU CAN BE SURE...IF IT'S

Westinghouse



W. R. McMillan, Supt. Distribution, Union Electric Co., one of three utilities who joined Westinghouse for this major development, with Cooper Slay, St. Louis Westinghouse representative. "Higher Westinghouse transformer breaker settings have meant a decided decrease in breaker trip-outs with no loss of transformer life" . . . Mr. McMillan.

J-70788



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All-Electric HEATERS

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- SAVES TIME AND LABOR
- PROFITABLE LINE TO HANDLE
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First and foremost, they're the SAFEST. Full protection against fire, shock or burn because all electric wires are completely sealed inside a finned aluminum casting. Only Electromode heaters have this Safety Grid heating element.

BASEBOARD Electric HEATERS

Designed for Modern Living

Spread a shield of comfortable warmth against cold walls, without drafts. Controlled by thermostat in each room. Matching baseboard fittings permit carrying out pleasing unbroken baseboard effect in any room.

Wall Model
For bathroom or small room

Complete Line of ELECTROMODE HEATERS

Includes

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RADIANT-CONVECTION PANEL HEATERS
BASEBOARD HEATERS
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Suspension-Type
Solves hard-to-heat areas in the plant and isolated locations.

INDUSTRIAL UNIT HEATERS

- SUSPENSION-TYPE (Illustrated) 34,150 to 153,675 BTU
- PORTABLE and SUSPENSION 5,122 to 25,613 BTU
- EXPLOSION-PROOF HEATERS Fully tested and approved for use in areas covered in Class 1, Group D. 6830 to 20,490 BTU
- FARM HEATERS Milk House, brooder pens, fruit and vegetable bins, etc. Pump House, valve pits, washrooms, warehouses.

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K. R. Way

Ray N. Leach, Blackburn president.

Mr. Way is well known in the electrical industry. Before joining Blackburn as sales manager in 1949, he served 13 years as a sales executive with other electrical equipment manufacturers. He retains his position as vice-president and general manager of Pieper-Lillard, Inc., a wholly-owned Blackburn subsidiary which manufactures earth anchors.

Blackburn is one of the major producers of electrical fittings and other equipment for utilities and electrical contractors. The firm has three plants in the St. Louis area and a new 100,000 sq. ft. factory and office building is now under construction in St. Louis County.

G. P. Vest has been appointed manager of marketing for the **General Electric Medium Transformer Dept.,** Rome, Ga., according to an announcement by **D. B. Lawton,** department general manager.

Prior to his recent appointment, Mr. Vest had served for five years as manager of G-E automotive sales for the Detroit area. A native of

G. P. Vest

Hiawatha, W. Va., he was graduated from West Virginia University in 1937 with a B.S. degree in electrical engineering and joined General Electric that same year as a member of the company's test engineering pro-

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Paranite has earned an unquestioned reputation for quality wire products and dependable service! Overhead : : . or underground : : : there's a Paranite cable specifically engineered to perform in excess of your requirements. Super-Pararite® butyl rubber insulations have been developed to withstand conditions in *your* area. Copper or aluminum bare or weatherproof cables—ACSR or line wire (formerly products of Midland Wire Corporation) are available.

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gram. Two years later he was made responsible for placement of engineers on the test course.

In 1940 Mr. Vest became assistant to the G-E vice-president of apparatus sales, a position he held until 1946 when he was assigned to the company's Detroit office as a sales engineer.

Robert L. Kempton, formerly assistant general sales manager, has been appointed general sales manager for **Edwards Co., Inc.,** according to an announcement by J. L. Taylor, vice-president in charge of sales.

Mr. Kempton joined the Edwards' sales staff in Chicago in 1940. In 1946 he was named Chicago district sales manager, and became assistant general sales manager in 1955.

Day-Brite Lighting, Inc., St. Louis, Mo., has announced the appointment of **Charles L. Amick** to the position of manager, Sales Department. Mr. Amick joined Day-Brite in 1955, as Central Regional sales manager. Formerly he was with General Electric Company at Nela Park in the capacity of illuminating engineer. Graduated in electrical engineering

Charles L. Amick

from Iowa State College in 1937, he received his professional E.E. in 1946. He is the author of a book, "Fluorescent Lighting Manual" published in 1942 by McGraw-Hill, with a second edition in 1947. Active in the Illuminating Engineering Society, Amick was elected a Fellow of the organization in the spring of 1956.

Daniel Woodhead Company of Chicago announces the appointment of **Norman Donovan** as assistant sales manager.

Mr. Donovan started with the Company in 1935 and was advanced to production supervisor soon after. In 1951, he became sales correspondent and was made national field representative in 1953.

Burndy Corporation of Norwalk, Conn., has announced the appointments of **Sidney Wolberg** as vice-president, purchasing; **Stanley M. Loomis,** vice-president, finance; and **George M. Szabad,** vice-president and counsel.

Mr. Wolberg, a 30-year veteran with Burndy, was previously purchase director as well as secretary, a post in which he continues. He joined the company in 1926, was elected to the board of directors in 1935, and named secretary in 1939. He has recently been elected chairman, Electrical Division, National Association of Credit Men.

Mr. Loomis joined Burndy as controller in 1946, was elected in 1947 to the board of directors and became treasurer in 1955.

Mr. Szabad, an attorney, began service with the corporation in 1954 as legal counsel and member of the board of directors.

Joe P. Gills, Charleston division manager for **Appalachian Electric Power Company,** has recently announced the promotions of **Waldo S. LaFon, J. V. Mann,** and **George E. Hervey.**

Mr. LaFon, former Beckley district manager for Appalachian Electric, is now assistant general manager of Kentucky Power Company at Ashland. (Both companies are subsidiaries of the American Gas and Electric Company.) Mr. Mann, former Point Pleasant district manager, has succeeded Mr. LaFon at Beckley, while Mr. Hervey, a former district superintendent at Charleston, has replaced Mr. Mann.

Leon D. Johnson, III, and **George C. Mahler** have been appointed chief design engineer and district superintendent, respectively, in the Engineering Department of the **Virginia Electric Power Company.** The announcement was made recently by Miles Cary, vice-president.

Mr. Johnson was former system planning engineer in VEPCO's Richmond operation, while Mr. Mahler previously served as Blue Ridge district engineer at Charlottesville.

Kansas City Power and Light Company has announced the appointment of **Frank G. Exter** as meter engineer, a newly-created position in its Meter and Service Department. After graduation from the University of Kansas

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Test-proven by International Testing Laboratories, Inc., for bond and tensile strength, climatic extremes, dielectric qualities, and elongation tests. Accurate exceeded all ASTM requirements. Rely on Accurate with confidence—Accurate is the choice of electrical men everywhere. Accurate Plastic Tape is Underwriters' Laboratories approved.
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THE ORIGINAL DUAL-GRIP ENTRANCE HEADS*

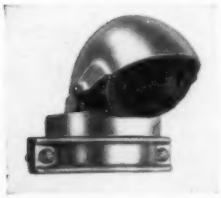
BY WEAVER

easier to use . . . just tighten the screws

"Dual-Grips" save time and money.
When "Dual-Grips" are used on EMT,
they're "on to stay"
—with no special fittings.

With rigid conduit, the electrician just slips
the head on and tightens the screws.
No valuable time wasted cutting threads.

Lightweight aluminum alloy — moistureproof—
rustproof. Six sizes: ½", ¾", 1", 1¼", 1½", 2".



NEW COMBINATION ENTRANCE HEADS
. . . head and reducer in one compact,
easily installed unit! No mast threading.
For 2" or 2½" rigid conduit or pipe.

MR. WHOLESALER: STOCK THESE POPULAR
HEADS NOW — THEY SELL!

J. A. WEAVER Company

2110 HOWARD ST., ST. LOUIS 6, MO.

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in 1952, Mr. Exter was an electronics engineer with the Civil Aeronautics Administration. He has been a district engineer with KCPL since 1953.

Ralph B. Black has been appointed agent for sale of **Pittsburgh Standard Conduit Company** rigid steel conduit, electrical metallic tubing, elbows, couplings, and fittings for New Mexico and the El Paso marketing area, it has been announced by A. A. Snowball, vice-president in charge of sales. Mr. Black's main offices are in Albuquerque, N. M. He was formerly associated with the Pyle National Company and has had 12 years experience as a consulting engineer.

In addition to Pittsburgh Standard Conduit, he also represents the All-Steel Equipment Co., the Jasper Blackburn Co., the Pass & Seymour Co., and Dearborn Electronic Laboratories.

Appointment of **W. L. Peterson** and **J. R. Mann** as managers of **Allis-Chalmers** Regulator and Transformer Departments, respectively, has been announced by L. W. Long, assistant general manager of the company's Power Equipment Division.

Both Mr. Peterson and Mr. Mann had been in charge of regulator and power transformer sales, respectively, since 1948.

Other regulator department appointments include **R. E. Horn,** manager of sales, and **R. P. Marohn,** chief design engineer.

In the transformer department, **L. W. Schoenig** becomes manager of sales, and **K. P. Wiederkehr,** chief design engineer.

W. C. Sealey, chief engineer in the transformer department since 1952, now reports to the assistant general manager of the Power Equipment Division.

The new appointees have an accumulation of nearly 150 years of transformer and regulator experience.

Arkansas Power and Light Company has announced retirement on January 1 of **Ralph D. Caldwell,** Northeast division manager, succeeded in that position by **W. P. Patten,** former Eastern division superintendent.

Retiring because of health reasons, Mr. Caldwell, a native of New Mexico, has been identified with electric power industry in Arkansas since 1920. He was one of the company's first local managers at Camden, Ark., where he has since remained.

Mr. Patten, an Arkansas native, joined Arkansas Power in 1925, and was advanced to division superintendent in 1944.

George Qualls

Three members of the **Oklahoma Gas and Electric Company** Purchasing Department recently promoted to

Bruce Spence

new key assignments are **George W. Qualls,** new coordinator for the company's building program in Oklahoma City; **Bruce Spence,** purchasing agent; and **Shelby H. Cline,** assistant purchasing agent, replacing Mr. Spence.

Mr. Qualls has been a member of Oklahoma Gas and Electric since

Shelby Cline

1920, when he began service with the Fort Smith Light and Traction Co., Fort Smith, Ark. He later came to Oklahoma City as assistant purchasing agent, remaining in the position until October, 1954 when he was promoted to purchasing agent.

Mr. Spence, a native of Oklahoma City, and a graduate of Oklahoma University, joined the Company in 1924 and served as both Northern division engineer and chief general engineer prior to his appointment as assistant purchasing agent in 1954.

Mr. Cline joined the company in 1925, and since 1946 has been buyer in the purchasing department.

West Texas Utilities Company has recently announced promotion of **E. N. Mitchell,** former General Meter Department superintendent, to personnel supervisor, and **J. G. McKeown,** assistant superintendent, to replace Mr. Mitchell. Both have been with the company for more than 25 years, connected with the Meter Department during their entire periods of service.

Several new district representatives have been appointed to the Sales Department of **General Electric's** Construction Materials Division. Those assigned to posts in the South and Southwest are:

L. Amador Flynt, who is assigned to the Southeastern District, will handle Wiring Devices. His office will be at 3005 North B Street, Tampa, Fla.

David F. Korb will be in the Mid States District with offices at 3620 Lexington Rd., Louisville 7, Ky. He will handle Wiring Devices.

DeWayne McCauley has been appointed to handle Wiring Devices, Wire and Cable, and Conduit Products for the Southeastern District. His office will be at 1300 Berryhill, Charlotte 1, N. C.

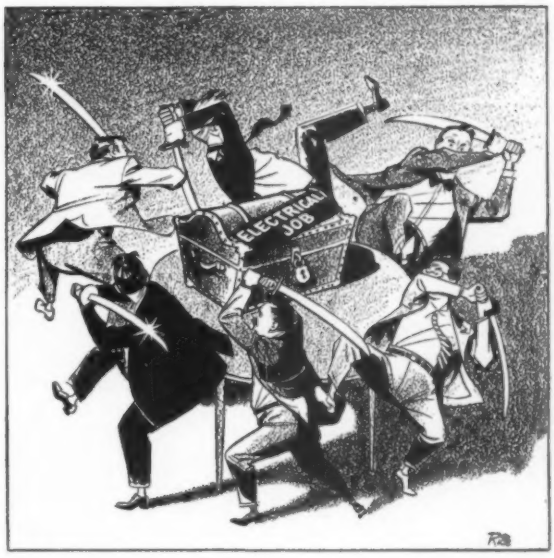
Allan B. Thomas has been designated to handle Wiring Devices, Wire and Cable, and Conduit Products for the Southwestern District, with offices at Witeside Building, Room 211, 18th Street and Avenue K, Lubbock, Texas.

F. M. Baker has been elected a vice-president of **Kentucky Power Co.,** succeeding **R. E. Doyle,** who has been elected vice-president of **Indiana & Michigan Electric Co.,** in Fort Wayne, Ind.

The election of **C. R. Hosey** and **John W. Wade** to vice-presidents of the **John C. Virden Co.** was announced recently by **John C. Virden, Jr.,** president.

C. R. Hosey has been made vice-president in charge of sales development. In addition to his new assignment, which includes in part distributor relationships, Mr. Hosey will

Who's cutting whose throat?



THE "scourge of below cost bidding" continues to eat away at the contracting industry – *and this in a time of the greatest construction boom in history!*

Why? Shortage of electricians is chronic! Thousands are badly needed across the country to meet the mounting needs of commerce, industry and the mushrooming home modernization market.

Yet in spite of this, the industry seems caught up in a give-away mania that's leaving millions of dollars on the bidding tables.

Why? Well, several reasons. Some contractors underbid simply because they don't know their own costs. Others, possessed by an urge to keep up a big front, try to maintain volume at any cost. Still others underbid merely to squeeze out competition and wind up on top.

The fact is that any selling involving consistent price cutting is suicidal – a form of salesmanship that can only lead eventually to large losses and bankruptcy.

A Way Out

Any way out of the squeeze? Yes, there is! This year the Electrical Industry is spending close to $10 million to help drop a *multi-billion dollar* Adequate Wiring market right in the contractor's lap.

And make no mistake about it, this rewiring business can be the highest profit business on your books – plenty of contractors have already proved it.

They like it because it helps take them out of the price squeeze. When a contractor sells a homeowner, for example, on the idea of "living better electrically," the only way competition can beat him out is by selling better ideas (selling up) – not by offering a cheaper job.

How To Get Your Share

Some contractors will wind up with a bigger share of the market than others. You can be one of these by following these suggestions: tie in with such powerful national promotions as the "Housepower" and "Live Better ... Electrically" Campaigns.

Sell the advantages of modern electrical living at every opportunity – through friends, civic and trade associations, neighbors.

Thirdly, present these advantages to your customers in terms they can understand – not in technical jargon. They'll buy when you point out the safety, comfort and convenience of a modern electrical system.

You, the contractor, are the industry's most intimate contact with the consumer. It is to you he will turn for the professional advice he needs. You should be prepared to fill that need.

Published in the interests of the Electrical Industry. Reprints of this message are available by writing to Dept. ESA at:

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LIVE BETTER ELECTRICALLY

OPERATION HOME IMPROVEMENT Better Your Living

FOR A HAPPIER AMERICA AT HOME

assist in the development of a marketing organization for the company. He joined Virden in 1945.

John W. Wade has been made manufacturing vice-president, and will be in charge of the company's plants in Cleveland. Mr. Wade, formerly with Sears Roebuck, joined Virden in 1954.

The election of Hosey and Wade as officers of the company is part of Virden's planned program of expansion to meet the increased demands for lighting equipment, according to Mr. Virden. The company recently announced the purchase of the **Holdenline** Co., Cleveland manufacturer of industrial and commercial lighting fixtures. Holdenline will be operated as a subsidiary of the John C. Virden Co., and will complement the Virden line of residential and commercial lighting.

BullDog Electric Products Co., Detroit, has appointed **Robert A. Loepp** to the post of assistant advertising and sales promotion manager. Mr. Loepp assumes his new duties after nearly three years as supervisor of creative advertising for BullDog. Prior to his tenure with BullDog, he was associated with the Chrysler Corporation and Florez, Inc.

R. C. Bennett, Jr., has been named general vice-president of **National Electric Products Corp.,** Pittsburgh, Pa. In his new executive position, Mr. Bennett will be responsible for the administration and coordination of National Electric's line and staff operations.

Vice-president of sales for National Electric since 1950, he has been associated with the electrical industry since 1942. He is president of the Electric Wire and Cable Assn. A past chairman of the rigid steel conduit section of National Electrical Manufacturers Assn., he is currently serving on various advisory and operational committees of the association.

Mr. Bennett has been a member of many advisory committees to the government and is one of the electrical industry's leading spokesmen in promoting new and modernized electrical facilities. He is a native of Chicago and attended Yale University.

E. F. Kelly has been elected president of **Pryne and Co.,** Pomona, Calif., and Keyser, W. Va., according to a recent announcement by the company board of directors. Mr. Kelly is succeeding Ralph Pryne, founder and

E. F. Kelly

president of the company since its inception in 1923. Mr. Pryne will remain active as the board chairman. **Phillip D. Pryne** has been elected vice-president in addition to his present duties as treasurer.

V. E. Willbanks has been named sales manager of the **W. L. Jackson Manufacturing Co.,** Chattanooga, Tenn., according to Hugh Jackson, president. Mr. Willbanks, who will

V. E. Wilbanks

have his headquarters in Chattanooga, has substantial sales and merchandising experience at the wholesale and merchandising levels. For the past 9 years he represented a water heater distributor.

The position of sales manager is a new one at the Jackson company. It is a result of the steady growth of the company each year, and a desire to work closer with their jobbers.

Edwin O. Young has been assigned to the Charlotte, N. C., district of **Allis-Chalmers** Industries Group as a sales representative.

An electrical engineering graduate of North Carolina State College, Mr. Young has been engaged as a sales engineer in recent years. Prior to that he was associated with the Electric Motor & Repair Co., Raleigh, N. C.

24" - 120" SIZES!

ONLY "BUFFALO" OFFERS THIS COMPLETE LINE OF HUSKY, EFFICIENT PROPELLER FANS.

- Opens the door to many *big* jobs formerly possible only with costly fans!
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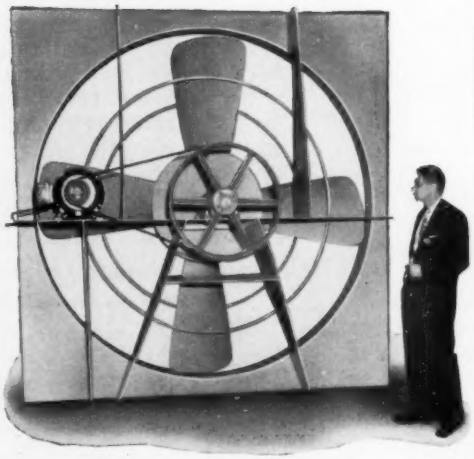
- A new high in propeller fan performance and durability!



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Sales Representatives in all Principal Cities

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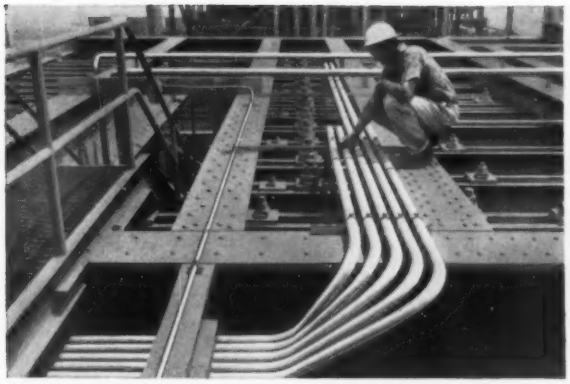
"E" BLOWERS-EXHAUSTERS



at Valley Steam Plant, Los Angeles Department of Water & Power . . .

. . . at Parking Facilities No. 1, Chicago Parking Authority . . .

. . . at Greater Pittsburgh Airport Terminal Building Fountain . . .

. . . at Shumpert Memorial Hospital, Shreveport, Louisiana . . .

. . . at Marian High School, Framingham, Massachusetts . . .

. . . at West Penn Power Company's Office Building, Cabin Hill, Pa.

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HAS HELPED CONTRACTORS MAKE PROFITABLE, TOP-QUALITY ELECTRICAL INSTALLATIONS!

Why? Because SPANG HD Galvanized Conduit offers these working advantages:

1. **Quality controlled manufacturing**—careful attention to heat, pressures and welding during processing produce a uniform product that is easy to cut, bend and thread.
2. **Top-quality finishing**—hot-dipped, heavy-duty galvanizing, evenly applied and coated with lacquer, prevents finish cracking, chipping, flaking or peeling off even under severe bending strains.
3. **Testing and inspection**—on each lot of SPANG HD to assure you of a *top-quality* product every time!

You can save time (and make a profit, too) with easy-to-work-with SPANG HD Conduit. Try it on your next job. Your nearby SPANG Distributor is at your service.

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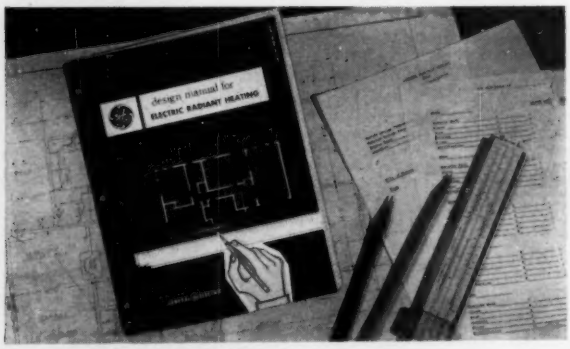
District Offices and Sales Representatives in Principal Cities

In servicing your community

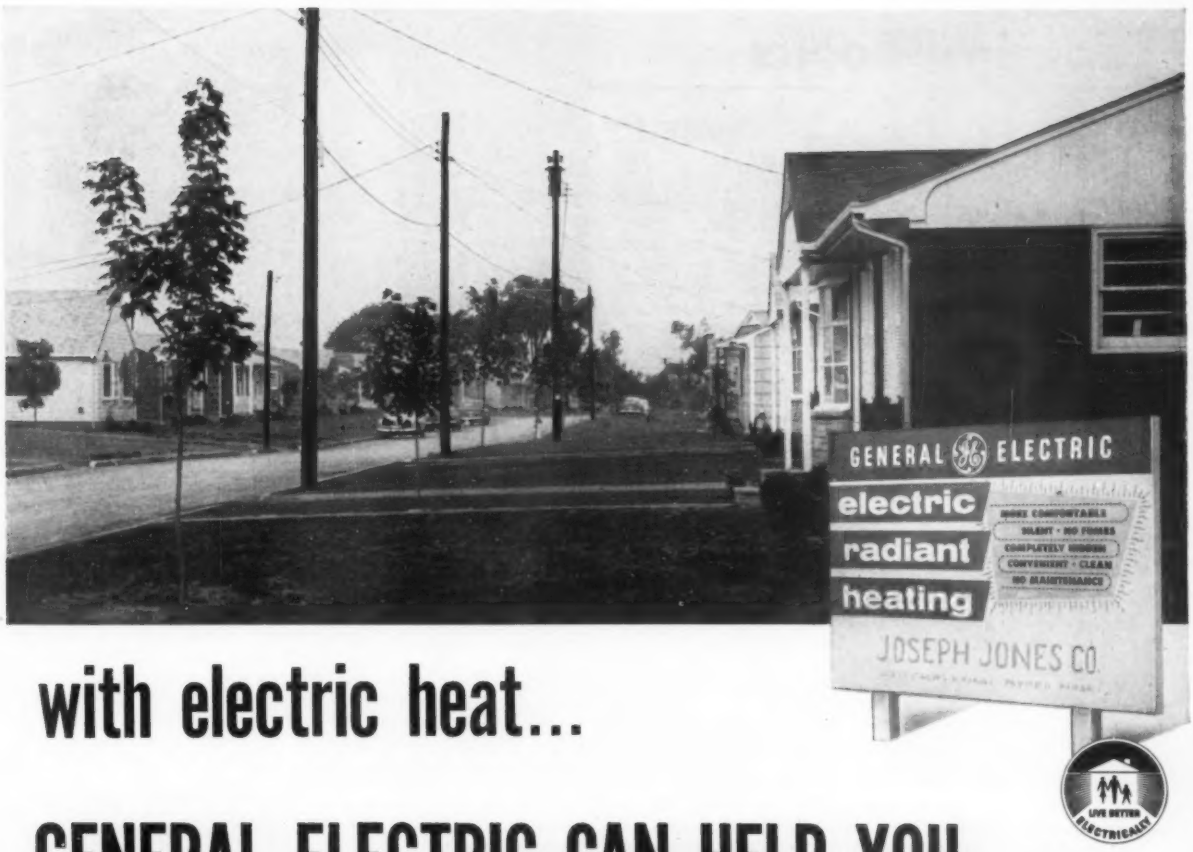
TRADE MEETINGS – General Electric representatives will assist you in planning and promoting electric radiant heating . . . will be pleased to make presentations at local meetings of architects, builders, contractors, etc.

SALES PORTFOLIO – Yours for the asking, contains a collection of folders, ad mat sheets, and other promotion material to help you develop your own electric radiant heating campaigns, and get your share of this rapidly expanding market.



DESIGN MANUAL – As an aid to proper design of electric radiant heating installations, G.E. has prepared step-by-step instructions for calculating heat loss and wiring requirements.

INSTALLATION MANUAL – Complete wiring instructions for contractors, with illustrations, for plaster-embedded and dry-wall applications. Also directions for concrete floor installations.



with electric heat...

GENERAL ELECTRIC CAN HELP YOU

With electric radiant heating, many utilities are finding a means of providing still another vital service to their communities . . . and at the same time they are developing winter residential loads to improve annual load factors.

With more and more homes featuring this modern heating system, utilities are enjoying a new source of revenue. Also, experience has shown that customers using electric radiant heating become better customers for the utility for *all other* electrical service as well.

In every way, G-E electric radiant heating offers you a practical, profitable, and immediate means to help your customers *live better electrically.*

The General Electric Company has prepared a portfolio of educational and sales helps for utilities interested in offering electric radiant heating. Included are: Design and Installation Manuals, factual information for professionals and consumers, and samples of promotional aids.

For a copy of this Sales Portfolio, or for other information on General Electric radiant heating, write to Wiring Device Department, General Electric Company, Providence 7, Rhode Island.

Progress Is Our Most Important Product

GENERAL ELECTRIC

Technical books

for the electrical man

Rural power directory

Published by Farm Power, 416 E. State St., Ithaca, N. Y. Price $.50.

Features of the "Farm Power Directory" include:

Complete directory of Rural Electric Cooperatives including names of manager, power-use advisors, home-power advisors, miles of line, meters in use, total annual kwh purchased and generated, and generating equipment;

Complete directory of rural telephone systems including name of manager, miles of line, phones on line, subscribers, exchanges, and contemplated expansion;

Listing of engineers and contractors serving the rural electric and telephone market.

Directory of statewide cooperatives which serve electric cooperatives within their state. Information includes name of president, executive manager, publication, editor, and membership statistics.

Tables showing farm electrification by states—giving total number of farms, farms electrified, and percentage of electrification, and table showing average kwh consumption per farm consumer—by states.

There are several articles and forecasts for the 1957 rural electric year.

Systems design

By Joseph F. McPartland and the editors of Electrical Construction and Maintenance. Published by McGraw-Hill, 327 W. 41st St., N. Y. 36, N. Y., 135 pages, illustrated. Price $6.00.

Standards of good electrical systems design as found in actual current practice are set forth in the practical book "Electrical Systems Design." It gives complete coverage of the design of modern and efficient electrical systems for power, light, heat, and communication. Installations in commercial, industrial, institutional and residential buildings are considered.

Step-by-step procedures are shown for selecting designs that will fulfill electrical power requirements; for implementing these designs with actual equipment and hardware; and for incorporating the resulting system within the physical dimensions of a building.

Electrical contractors, architects, electrical estimators, will find a complete over-all picture: basic wiring concepts and configurations; circuit and distribution designs; types, sizes, models, characteristics, of actual conductors, apparatus, and hardware; and complete installation procedures.

Comprehensive, profusely illustrated, it will provide self-training in systems design for the newcomer to this field, reference data for practicing designers, and a view of modern trends in electrical design and construction for all.

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THE BEST CRAFTSMEN ALWAYS TAKE PAINE'S
THE PAINE COMPANY, 21 Westgate Road, Addison, Illinois

Mathematical advances

By Edwin F. Beckenbach. Published by McGraw-Hill Book Co., Inc., 330 W. 42nd St., N. Y. 36, N. Y., 490 pages, 211 illustrations. Price $7.50.

"Modern Mathematics for the Engineer" is a broad survey of the application of advanced mathematics to the rapidly expanding technology of today. Emphasis is placed on the importance of stochastical analysis, and linear, nonlinear, and dynamic programming in modern engineering. High-speed computation methods and applications are extensively covered.

This book is the second in a series which grew out of the highly successful engineering extension lecture courses at the University of California at Los Angeles. It contains articles by many experts in the field of advanced mathematics known for their theoretical competence and practical experience.

Metallic rectifiers

By Leonard R. Crow. Published by Howard W. Sams & Co., 2201 E. 46th St., Indianapolis, Ind., 286 pages. Price $3.00.

Conductor Clamps

"Hub-Rak" Secondary Racks

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Insulated Clevises

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HUBBARD aluminum hardware cuts corrosion costs

If you are faced with mounting corrosion costs in your service area, it will pay you to investigate Hubbard Aluminum Pole Line Hardware. This constantly growing line of hardware items was especially developed for application in corrosive atmosphere. To accomplish this, Hubbard combined the corrosion resistance, lightness and strength of special Aluminum Alloys with new fabricating techniques to produce hardware capable of long service life under extremely adverse conditions.

The special conditions of contamination in your area as well as other factors can be successfully overcome by the right choice of Pole Line Hardware Material. In addition to Aluminum Alloy, Hubbard Pole Line Hardware items are available in galvanized steel, Cor-Ten steel and special items in Copperweld steel. A Hubbard Hardware specialist will be glad to make a study of the atmospheric conditions which affect the service life of your pole line hardware in order to provide you with the type of hardware best suited to your needs.

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"Metallic Rectifiers—Principals and Applications" presents theory, principles, and applications of the three most commonly used metallic rectifiers; namely, the copper-oxide, the magnesium-copper sulfide, and the selenium. Also presented are rectifier circuits, applications of power rectifiers and small current rectifiers, instrument rectifiers, and rectifiers used as electrical valves.

One chapter discusses the new silicon type rectifiers. At the back of the book, electrical and metallic rectifier terminology is presented. along with a classified list of metallic rectifiers manufacturers, and a classified bibliography for those who desire further study of metallic rectifiers.

The metallic rectifier has become an important circuit component for use by the electronic designer, the engineer, and the service technician, because it facilitates rectification, instrumentation, and control. They are most useful for the conversion of alternating current into direct current, but they also are used for control circuits due to their one-way valve characteristics.

Service manual for recorder and changer

Published by Howard W. Sams & Co., Inc., 2201 E. 46th St., Indianapolis 5, Ind., Volume 8, $3.95.

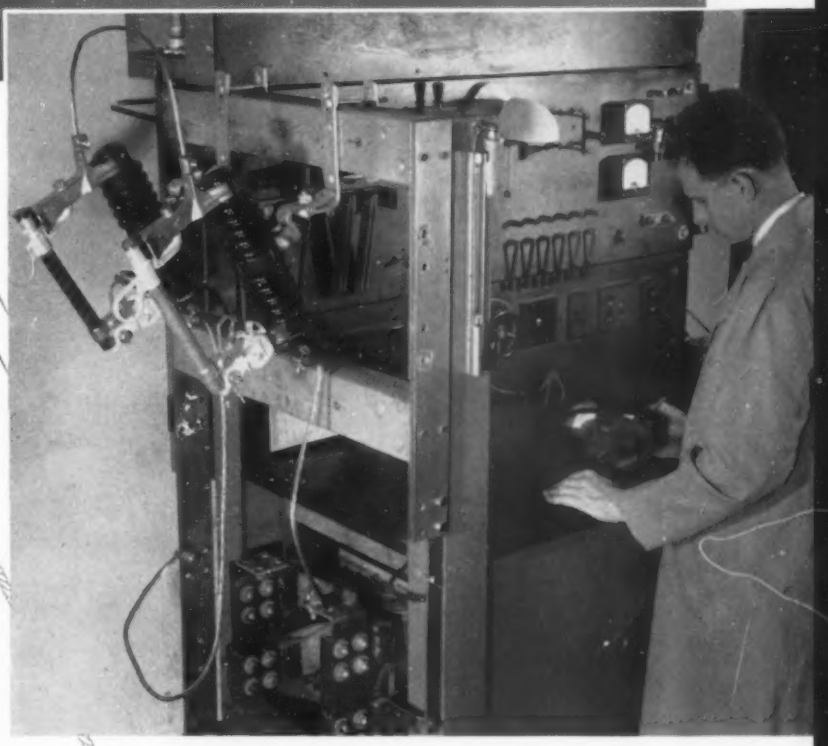
The availability of Volume 8 of the "Automatic Record Changer Tape Recorder Service Manual" series has been announced by the Howard W. Sams & Co., Inc. This volume presents complete service information on sixteen tape recorders and two record changers produced in 1955 and 1956.

Presented on each recorder and changer are the exclusive copyrighted "Photofact Exploded Views," operational data, and detailed service instructions originated by the Howard W. Sams engineering staff.

The index lists all models which were presented in the first seven volumes as well as those covered in Volume 8. Thus, reference to this index will disclose which volume in the series contains the desired information. A cross-reference index which identifies the makes and models of changers used in various radio and television receivers is also provided. This reference is intended to speed the identification of the changer type so that proper service information can be located.

The book is now available through electronics parts distributors or direct from the publisher.

Laboratory Checking of KEARNEY FUSE LINKS



Your Assurance of Dependable PROTECTION

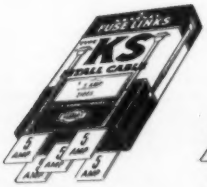
Today's improved techniques in power transmission and distribution provide better service for more users . . . but impose correspondingly greater demands on protective apparatus. KEARNEY, the always-reliable name in primary fuse link engineering, has kept pace with these needs, developing Fuse Links which safely satisfy modern operating requirements.

The vital *plus* in KEARNEY Fuse Links is *accuracy* of performance, proved by extensive, continuous tests *duplicating field conditions*, at the KEARNEY Substation Laboratory.

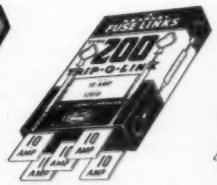
Standardize on KEARNEY Fuse Links. They're design-matched with modern safe loading curves . . . for positive equipment protection . . . for close coordination from service drop to substation.

KEARNEY Specialized and Standard Fuse Links . . .
for accuracy, reliability

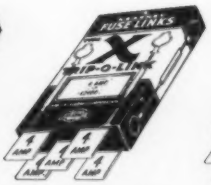
FAST SERVICE! Routine or emergency shipments from KEARNEY field warehouse near you will supply your needs in a matter of hours



SPECIALIZED TYPE KS

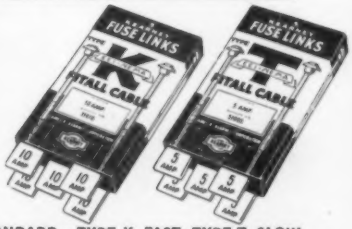


SPECIALIZED TYPE 200



SPECIALIZED TYPE X

SPECIALIZED TYPE QA



STANDARD—TYPE K, FAST; TYPE T, SLOW

JAMES R. KEARNEY CORPORATION, *General Offices:* 4224-42 Clayton Avenue, St. Louis 10, Missouri

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SAFER MAINTENANCE
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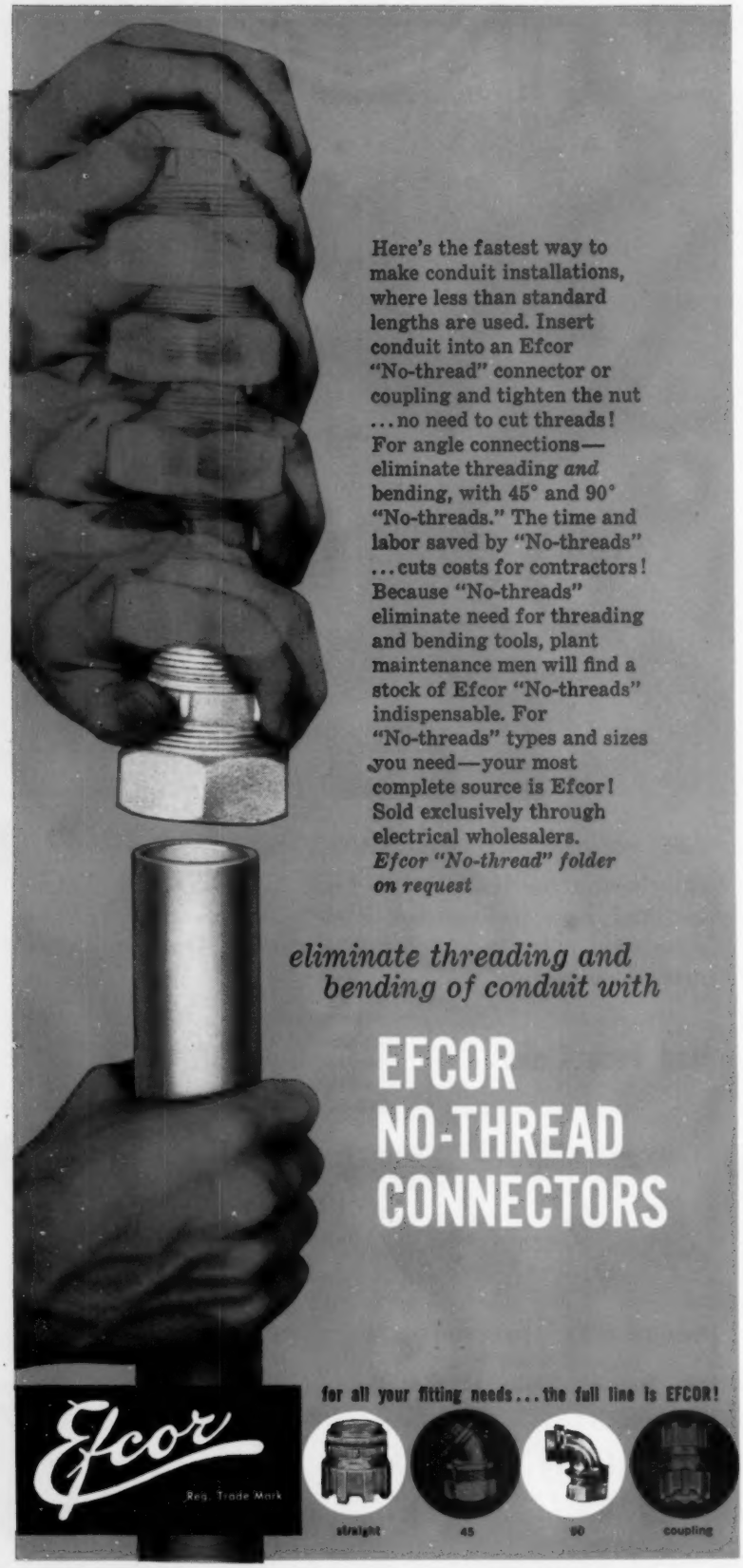
Here's the fastest way to make conduit installations, where less than standard lengths are used. Insert conduit into an Efcor "No-thread" connector or coupling and tighten the nut ... no need to cut threads! For angle connections—eliminate threading *and* bending, with 45° and 90° "No-threads." The time and labor saved by "No-threads" ... cuts costs for contractors! Because "No-threads" eliminate need for threading and bending tools, plant maintenance men will find a stock of Efcor "No-threads" indispensable. For "No-threads" types and sizes you need—your most complete source is Efcor! Sold exclusively through electrical wholesalers.
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for all your fitting needs ... the full line is EFCOR!
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45
90
coupling
ELECTRICAL FITTINGS CORPORATION, 37-50, 57th STREET, WOODSIDE 77, L. I., N. Y.

Free bulletins

Available upon request from **The Wakefield Co.,** Vermilion, Ohio, is the 1957 condensed catalog featuring new information on its **luminous ceilings, modular lighting equipment, pendant mounted fixtures,** and the announcement of its latest development—the **Wakefield high frequency lighting system.** The 12-page booklet is available at no cost or obligation.

For additional data, ask for item B-314, using the coupon on page 85.

Bulletin SB1, describing **Line Material Company's "packaged" steel substations,** is now available from the company, Milwaukee 1, Wis. Six of the most popular distribution substation designs for urban, rural, or industrial applications are illustrated. Typical bills of material for each design are shown for various operating voltages.

L-M's co-ordinated engineering, ordering, and shipping method is explained. Basic information on structural strength and structure foundations plans is included in the bulletin.

For additional data, ask for item B-315, using the coupon on page 85.

A 32-page catalog for use in public utility and industrial electrical fields has just been published by the **Charleston Rubber Co.,** Charleston, S. C., which illustrates **linemen's protective rubber equipment** for use in working with high voltages.

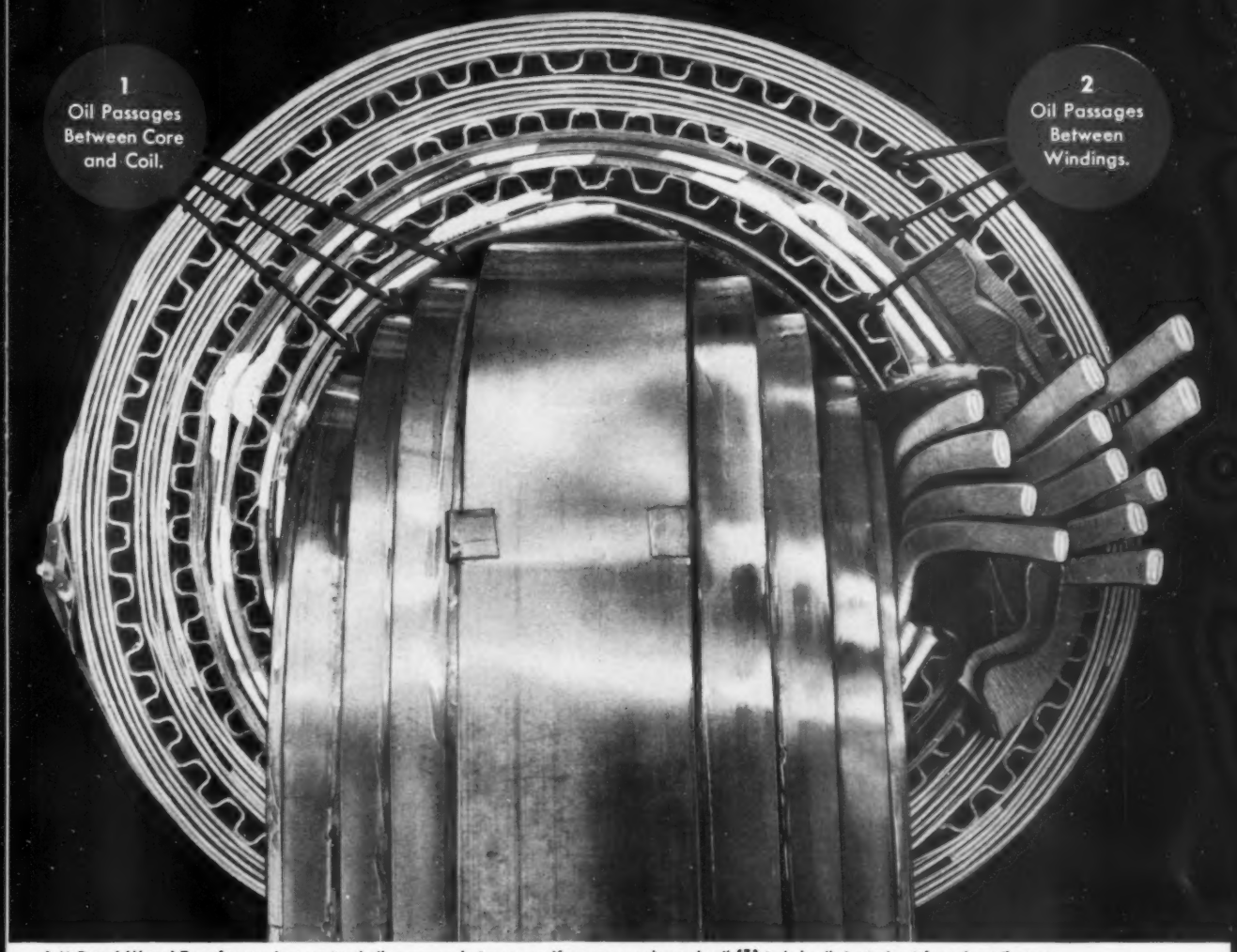
Profusely illustrated, and printed in three colors on heavy gloss enamel stock, the plastic-bound catalog fills a long awaited "under-one-cover" need in the electrical protective equipment industry.

The catalog describes the company's research program and explains how Charco equipment is carefully manufactured and tested. It describes and illustrates many products of the Charleston Rubber Co., offering instructions on proper care and use of equipment. Informative technical reports, available without charge from the company, are listed.

For additional data, ask for item B-316, using the coupon on page 85.

Advantages and usages of the new VHO (Very High Output) **fluorescent lamp** are described in a new four-page brochure now available from **Sylvania Electric Products Inc.,** 60 Boston St., Salem, Mass.

The VHO lamp, as the brochure points out, is a revolutionary design concept of fluorescent lighting. Four outstanding features—more efficient lamp diameter, Rapid Start continuous filament heating, "pressure con-



L-M Round-Wound Transformers have natural oil passages between cruciform core and round coil **(1)** to help dissipate heat from the coils more rapidly. In addition, ducts provided by spacers placed between windings **(2)** and between layers in most sizes provide additional oil circulation.

Why More Customers Are Selecting L-M Round-Wound® Transformers

Many factors enter into transformer selection. Here are some of the reasons for the great increase in customer preference for L-M's obround-shape Round-Wound transformers.

Balanced Performance: The core is a continuous wound strip of oriented steel. Coils are wound directly onto this core. Since the core is not cut, unwound, or disturbed in any way after annealing, there are no air gaps to break up the flux. This results in low exciting current and core loss.

The wound-core, round-coil design permits fewer winding turns and smaller turn diameter. This results in low impedance, and provides better regulation at all power factors.

Higher Uniform-Impulse Level: Round coils are wound into shape. Therefore, insulation is not damaged by malleting into rectangular shape. Coils have longer creepage distance between windings and between leads.

Higher Short-Circuit Strength: Round coils are not stressed out of shape under high radial short-circuit forces. Strong steel frame, heavy clamping bolts, sturdy maple blocks and varnished coils prevent axial movement.

Higher Short-Time Overload Capacity: Round coils and the cruciform cross-section core expose large surfaces to cooling oil. The result is relatively low hot-spot temperatures, which add considerably to high short-time overload capacity.

Additional Capacity on Pole: L-M's new obround tank design makes the unit smaller and lighter, with shorter moment arm from the pole. This combination reduces bending moment on the pole and crossarms, and thus greatly increases potential capacity of existing transformer structures.

Get Complete Information

Ask your L-M Field Engineer for complete information and bulletins on L-M's Round-Wound Transformers. Or write Line Material Company, Transformer Division, Zanesville, Ohio.

286

LINE MATERIAL
McGRAW-EDISON COMPANY

trol" center, and the use of neon gas instead of argon—are highlighted in the folder in describing how the lamp produces more than double the light output of similar conventional fluorescent lamps.

For additional data, ask for item B-317, using the coupon on page 85.

Presenting data on **electrical connectors** in readily usable form, a new "Connector Reference File" is being issued by **Burndy Corp.**, Norwalk, Conn. Each sheet in the series is devoted to a connector type used in power transmission or distribution.

Illustrated with photographs and drawings, the file's pages include brief descriptions of connector applications and design features and list the range of conductors accommodated. Information on all connectors is presented uniformly to facilitate ready reference.

For additional data, ask for item B-318, using the coupon on page 85.

A new illustrated booklet (No. 19-606) on installation practices for **interlocked armor cable systems** has been announced by the **General Electric** Wire and Cable Department, Bridgeport, Conn.

The 36-page booklet is devoted to photographs showing terminations and splices; connections to switchgear, motors and plug-in bus; special installation problems; typical installations; and "before" and "after" illustrations showing the older wiring system side by side with the new interlocked armor cable system.

For additional data, ask for item B-319, using the coupon on page 85.

Four basic arrangements of **rural package substations** are described in a new bulletin available from the **General Electric Co.**, Schenectady 5, N. Y.

Designated GEA-5276C, the 32-page publication contains photos, diagrams and information on the following substation arrangements: simple radial with one feeder; simple radial with one to four feeders; radial with looping high-voltage circuit, and high-voltage selective for two incoming lines.

Guide form specifications and information on the application of reclosers are included with the bulletin.

For additional data, ask for item B-320, using the coupon on page 85.

"Total Protection"—a new concept in protected enclosures for industrial a-c motors advanced by **Reliance Electric and Engineering Co.**, 1088 Ivanhoe Rd., Cleveland 1, Ohio,—is graphically described in the new Bulletin B-2501.

Cutaway views of a new totally-protected Reliance motor and its components clearly show how it is designed for applications which formerly required drip-proof or splash-proof motors, yet is guaranteed to operate within a maximum temperature rise of only 40° C.

For additional data, ask for item B-321, using the coupon on page 85.

A newly revised Cross Reference Guide for selecting **General Electric fluorescent ballasts**—GED-2416B—12 pages, contains cross reference information for general line, rapid start, slimline, instant-start, and circline ballasts—all 60 cycle. An aid to distributors and contractors, the pocket sized booklet lists other manufacturers' catalog model numbers comparable to General Electric designations referenced according to application requirements.

For additional data, ask for item B-322, using the coupon on page 85.

Described in a new illustrated four-page folder is the "800" Series **floor box**, component parts and service fittings, manufactured by **National Electric Products Corp.**, Gateway Center, Pittsburgh 22, Pa.

A modernized "flexible" outlet box designed for use in the floor, the "800" series is reported available in sizes ranging from a minimum height of 2⅝-inches to 3¼-inches. The box is comprised of simplified assembly pieces that permit easy installation and adjustment to the required floor surface.

For additional data, ask for item B-323, using the coupon on page 85.

Bulletin FC5, describing L-M's complete **new line of fuse links**, including EEI-NEMA Types "K" and "T", is now available from **Line Material Co.**, Milwaukee 1, Wis. Dimensions, time-current curves, construction features, and application information are included.

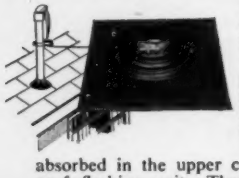
L-M's method of packaging and labeling to facilitate handling of fuse links in both storeroom and field are also described in the bulletin.

For additional data, ask for item B-324, using the coupon on page 85.

A new 12-page bulletin describes the recently announced line of POC (paper-oil condenser) **bushings** meeting ASA Standards, manufactured by **Lapp Insulator Co., Inc.**, Le Roy, N. Y.

The bulletin lists five bushing sizes, 15, 23, 34.5, 46 and 69kv with complete description of the totally enclosed paper-oil condenser type construction. Catalog numbers, ratings,

Blackhawk Service Entrance Masts with
REVOLUTIONARY NEW
NEOPRENE *roof flashing units*
--VIBRATION ABSORBING, WEATHERPROOF



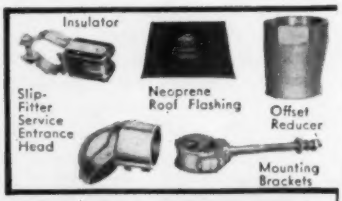
Now, the entire roof flashing unit of Blackhawk Service Entrance masts is made of vibration absorbing, weatherproof Neoprene. When the mast begins to vibrate from high winds or cable sway, the Neoprene "gives" slightly. In this way, vibrations are absorbed in the upper collar and bulge area of the roof flashing unit. There's no strain on the roof. Blackhawk's Neoprene unit is weathertight and weatherproof. Withstands sun, rain, freezing cold without cracking, peeling or rotting.

To install the unit, simply slip it on over the pipe and push it down to the roof. Adjustable metal clamp seals collar to the mast providing a completely weather tight fitting. Shingles fit over it easily, providing a neat installation. Neoprene roof flashing units are available for 2" or 2½" pipe.

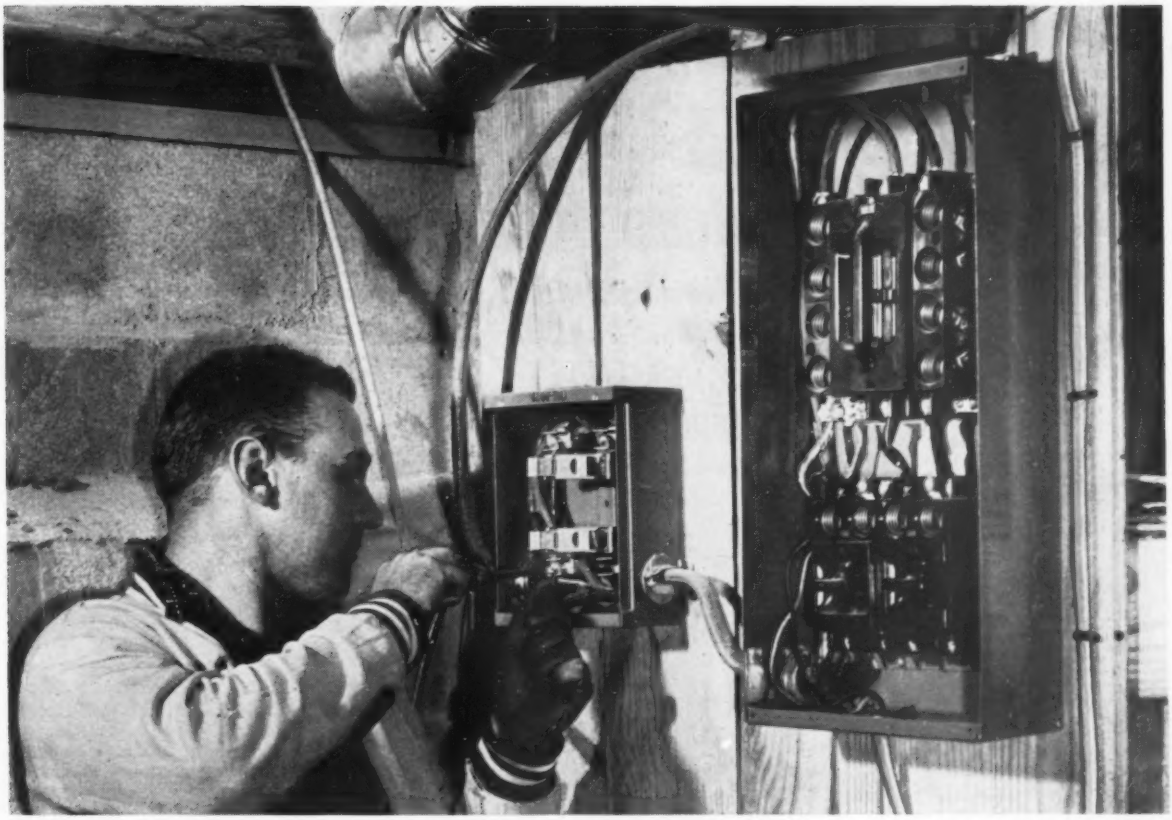
Topping off the Blackhawk service entrance mast is the Slip-fitter service entrance head which slips over the conduit. Needs no threads. No extra clamping devices. Tighten the two set screws and head is firmly in place. Blackhawk service entrance heads are available in 2" and 2½" units with 1¼" service entrance cap.

Blackhawk's sturdy pipe mounting brackets, attached to the vertical studding support the *entire* service drop strain. Eliminate weight and vibration strain from rafters and roof.

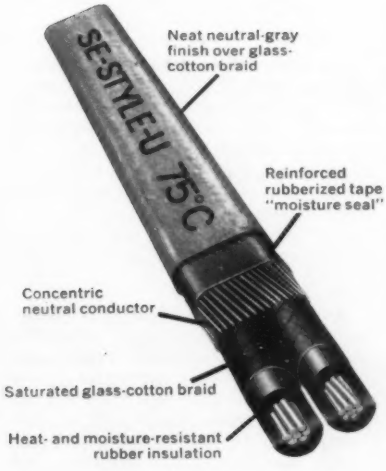
Blackhawk service entrance masts, with slip-fitter head and new Neoprene roof flashings, can be sold as a complete kit or as separate fittings.



Blackhawk Industries
BLACKHAWK INDUSTRIES
DUBUQUE, IOWA



Rome's new service entrance cable is designed for modern 100 ampere service


SE-STYLE-U 75°C
Neat neutral-gray finish over glass-cotton braid
Reinforced rubberized tape "moisture seal"
Concentric neutral conductor
Saturated glass-cotton braid
Heat- and moisture-resistant rubber insulation

Rome's new and improved Type SE service entrance cable meets all requirements for 100 ampere service that can handle all the electric appliances and air conditioning needs of modern living.

In addition, it may enable you to reduce warehouse inventory levels and the amount of cable carried in your service trucks. You can use the same cable: 1. From pole to meter. 2. From service drop to meter 3. And from meter to electric range, clothes drier, hot water heater, etc.

Other features include:

1. The outer glass-cotton braid is finished to give the cable a neat appearance without sacrificing flame and moisture resistance.
2. The glass-cotton braid on each conductor—one red and one black—provides easy conductor identification.
3. Underwriters' approved for 75° C. operation in *either dry* or *wet* locations. A reinforced rubberized tape under the weather-resistant outer braid puts the conductors in a "dry location."
4. In three conductor construction for 100 ampere service, Underwriters' approval makes possible the use of size 3 AWG copper conductors, or two 3 AWG conductors with a 5 AWG neutral conductor.

Specify Rome service entrance cable for your next job. Contact your nearest Rome Cable representative for more information—or write to Department 365-B and ask for Bulletin SE-1. Rome Cable Corporation, Rome, New York.

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TODAY more than ever—

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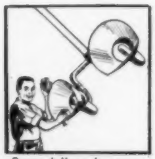
Remain Unsurpassed in UTILITY and EFFICIENCY

They do away with Risky Climbing

They eliminate expensive elevating equipment



Save dollars because Floodlights can be serviced from ground

The Greatest Boon to Easy Maintenance — and, easy maintenance promotes more frequent cleaning of Floodlights

199-E Square Tapered Pole in 20', 24' and 30' mounting heights

300 Series Round Pole in 20' and 24' mounting heights

800 Series Street Lighting Type in three mounting heights

A Revere First

Introduced over 25 years ago

— and, more desirable today when competition demands highest efficiency in outdoor lighting.

Cor-Ten Heavy-Duty Pole will handle 180 lbs. of Floodlights

THE PATENTED WIRING ARRANGEMENT THROUGH THE HINGE PIN on which the success of **REVERE HINGED POLES** is based. Note: Wire lays flat when Pole is down— no perceptible movement of wires.

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THE ONLY COMPLETE LINE OF LUMINAIRES - FLOODLIGHTS AND POLES FOR STREET - SPORTS - AIRPORT - SERVICE STATION - OUTDOOR THEATRE - MARINE AND INDUSTRIAL LIGHTING

dimensions and specifications, as well as photographs and line drawings of the bushings, are included in the bulletin.

For additional data, ask for item B-325, using the coupon on page 85.

A new booklet in its mercury vapor lamp series has been made available by **Sylvania Electric Products Inc.,** 60 Boston St., Salem, Mass. Entitled **"How Mercury Vapor Outdoor Lighting Brings More Night Action,"** the eight-page booklet is designed for markets such as railroads, transit companies, oil companies, refineries, steel mills, supermarket chains, etc.

Stressing the low cost and versatility of mercury vapor lamps for outdoor lighting, the new booklet illustrates the use of these lamps in such locations as service stations, shopping centers, transportation terminals, parking lots, athletic fields, golf courses, garden lighting, industrial areas, billboards and displays.

For additional data, ask for item B-326, using the coupon on page 85.

"Nepco-Lok Interlocked Armored Cable, Supports and Fittings" is the subject of a catalog-type bulletin recently published by **National Electric Products Corp.,** Gateway Center, Pittsburgh 22, Pa., for electrical engineers and contractors, architects, plant engineers and others who specify electrical systems for new and old electrical facilities.

Contained in the 24-page book are photographs and specific descriptions of the various types of Nepco-Lok armored cables available for voltages up through 15,000 volts, single and multi-conductor.

For additional data, ask for item B-327, using the coupon on page 85.

Sta-Brite Fluorescent Manufacturing Co., 3550 N. W. 49th St., Miami, Fla., has released a catalog containing its complete line of **fluorescent fixtures.** Installation diagrams, foot-candle calculation tables, and Sta-Brite equivalents for government specifications are also included.

For additional data, ask for item B-328, using the coupon on page 85.

A new eight-page two color illustrated catalog (Bulletin No. 4824) describing the new Airfoil **centrifugal fans** for heavy duty industrial applications is now available from **American Blower Corp.,** Detroit 32, Mich.

The new bulletin thoroughly discusses the performance features and construction details of the new fans. The discussion is supplemented with photos and drawings of wheel, housing, bearings, shaft, bearing supports and inlet screens.

For additional data, ask for item B-329, using the coupon on page 85.

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has more of the features you want...

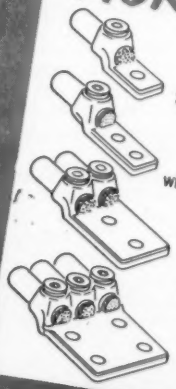
O.Z. means more for you

The O. Z. ShureLug is the newest addition to the complete O. Z. line of electrical fittings; more proof of O. Z.'s policy to make available dependable products at realistic prices.

MORE SIZES

The new O. Z. ShureLug is available for a wide range of sizes, including "in between" sizes usually found only in more expensive makes. This means that whether the job calls for #14 sol. or 1000 MCM cable, there will be an O. Z. ShureLug that will meet your needs more closely, more exactly, for a more secure, more dependable connection.

MORE MODELS



Here's variety too!: O. Z. ShureLug is available in single barrel, double barrel, and triple barrel models . . . with socket heads or hex heads . . . in single hole, double hole, and four hole styles, depending upon sizes selected. Here again, premium selection at practical prices!

MORE ECONOMY

O. Z. ShureLugs are priced no higher than other competitive brands, but you get so much more! Because O. Z. ShureLug is made in more sizes, more models, you buy only the capacity you actually need . . . only the capacity that you'll actually use. Why spend more for over-sized lugs when O. Z. has the size you want, the model you need, at the low economical prices you want to pay?

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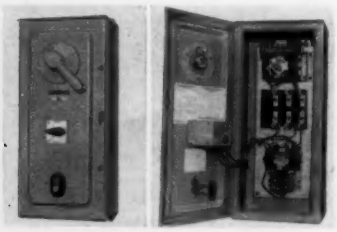
New products

Card controller features long time-lag heater coils

A NEW CONTROLLER designed specifically for the control of individually driven cotton cards is announced by Cutler-Hammer, Inc., North 12th St., Milwaukee, Wis.

Coupled with overload protection to match the specific characteristics of the special motors used on card



drives, are long time-lag heater coils for complete motor protection during running or jogging, and for the longer time required to bring high inertia loads up to speed.

Rated at 5hp-220v and 7½hp-440v, the textile controller's cover mounted, drum-type reversing switch provides reverse operation for grinding cards and is electrically interlocked with a three pole magnetic contactor so that accidental reversing is impossible in forward drive.

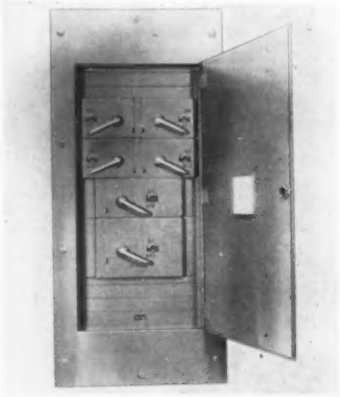
For additional data, ask for item P-330, using the coupon on page 85.

New panelboard features fusible switching units

A HEAVY-DUTY power distribution panelboard incorporating rigidly mounted fusible switch units of the quick-make, quick-break type has been announced by the Distribution Assemblies Department of the General Electric Co., Plainville, Conn.

The new panelboard is designed for 600-volt a-c maximum service, 2- or 3-wire, single-phase, and 3- or 4-wire, 3-phase applications. Known as the Type QMR, it can be safely operated in systems having short-circuit capacities up to 100,000 amperes rms asymmetrical when current-limiting fuses are used.

The fusible switching devices used in the new design are each individually enclosed in a protective steel compartment. An interlocked cover can be opened only when its handle



is in the OFF position. The units are of modular construction to permit ready interchangeability, and can be provided in ratings of 30 to 200 amperes, 2- and 3-pole construction. Units are horsepower rated for both standard and time delay fuses. The new panelboard is listed by Underwriters' Laboratories, Inc.

For additional data, ask for item P-331, using the coupon on page 85.

Two-door panel enclosures available in eight sizes

EIGHT SIZES of two-door NEMA 12 panel enclosures ranging from 54" x 42" x 8" up to 72" x 60" x 12" have been added to the existing single-door line from Hoffman Engineering Corp., Anoka, Minn.

No centerpost is used in the construction of these steel liquid tight enclosures, which utilize all welded seams and have no holes. The offset doors are gasketed with Neoprene sponge and are secured by a locking handle with a three-point latch. The enclosures have a 12-inch stand for floor mounting and lifting eye bolts.

For additional data, ask for item P-332, using the coupon on page 85.

New ventilating system includes four units

PRODUCTION of a new ventilating hood which will give even the budget house an efficient ventilating system has been announced by Trade-Wind Motorfans, Inc., of Rivera, Calif.

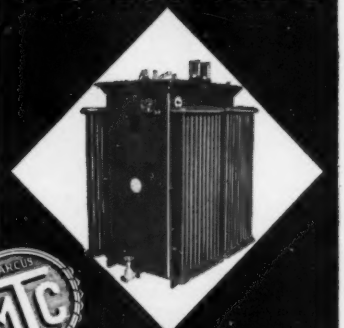
Named the Patrician ventilating hood, the complete system includes 4 units: (1) the attractive hood

DID MACY'S TELL GIMBELS

about those wonderful MARCUS transformers

We don't know . . . but both of these nationally famous department stores use Marcus Transformers for power and lighting distribution.

Marcus "Mark of Quality" transformers GUARANTEE trouble-free service and safe, dependable operation. For bigger profits and greater customer satisfaction, use MARCUS for your next installation.



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RAHWAY, NEW JERSEY

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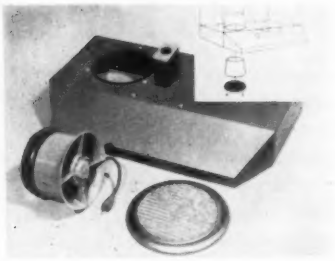
A COMPLETE LINE OF DRY TYPE AND LIQUID-FILLED TRANSFORMERS THRU 5000 KVA



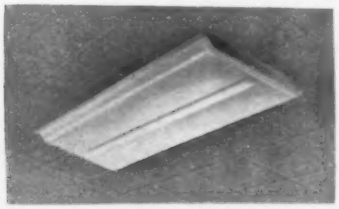
which blends with any room decor is available in 30", 36", 39", 42" and 48" lengths — finishes are standard Coppertone as well as colors; (2) the efficient 300 cfm axial flow ventilator which removes smoke, heat and fumes from the air and exhausts them to the outside under pressure; (3) a 9" filter grille that takes the grease from the air being exhausted, is easily removed for a soap and water cleaning; (4) and an underhood light has a single switch that operates both light and ventilator so that they can be turned on separately or simultaneously.

For additional data, ask for item P-333, using the coupon on page 85.

Shallow lighting fixture houses ballast above unit

Of particular interest to architects and interior designers, electrical engineers, contractors and maintenance men is the introduction of a new shallow surface-mounted luminaire, the Shallorama, by Sunbeam Lighting Co., 777 E. 14th Place, Los Angeles, Calif.

This unique, four-lamp Visionaire is a luminous structural element with an apparent depth of only 2¼ inches and appears to be a recessed unit with a "dropped" Plexiglas diffuser panel extending below the ceiling line. The high-stress formed, dimensionally stable, micro-embossed matte-finished Plexiglas diffuser "wraps around" the fixture, forming the "sides" and a portion of the ends; the side returns are retained within the shallow, die-formed steel side rails which serve at either side



as both hinge and latch for the panel without the customary exposed hinges, hooks or latches.

The diffuser configuration allows illumination to be cast onto adjacent ceiling areas to minimize fixture-ceiling contrasts. End returns of the diffuser are secured within the shallow, die-formed end plates and pro-

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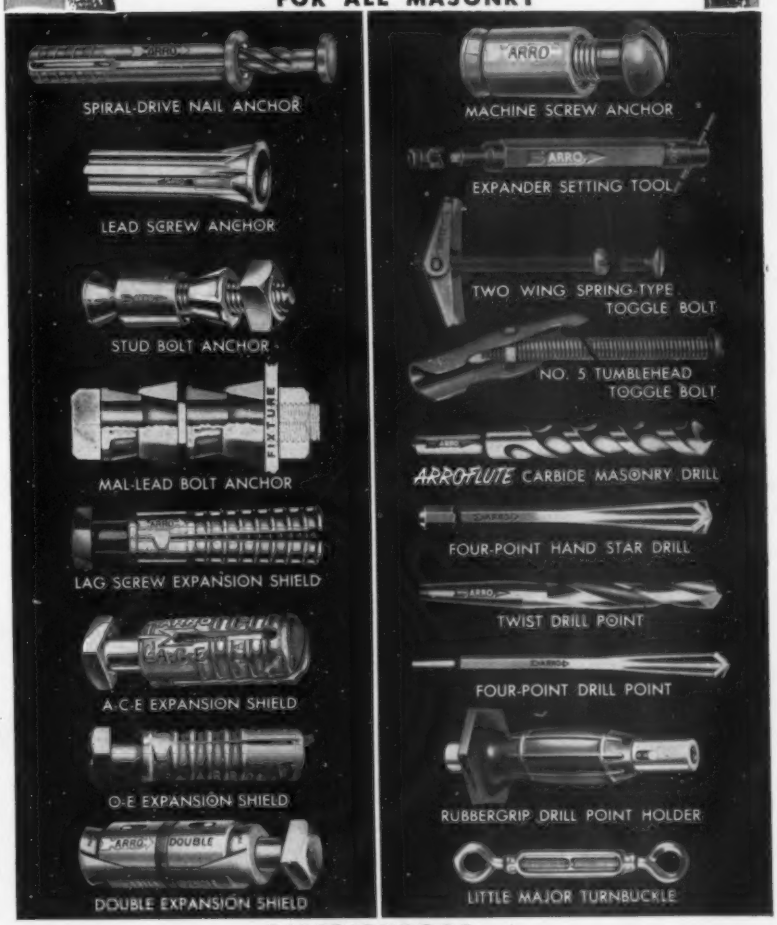

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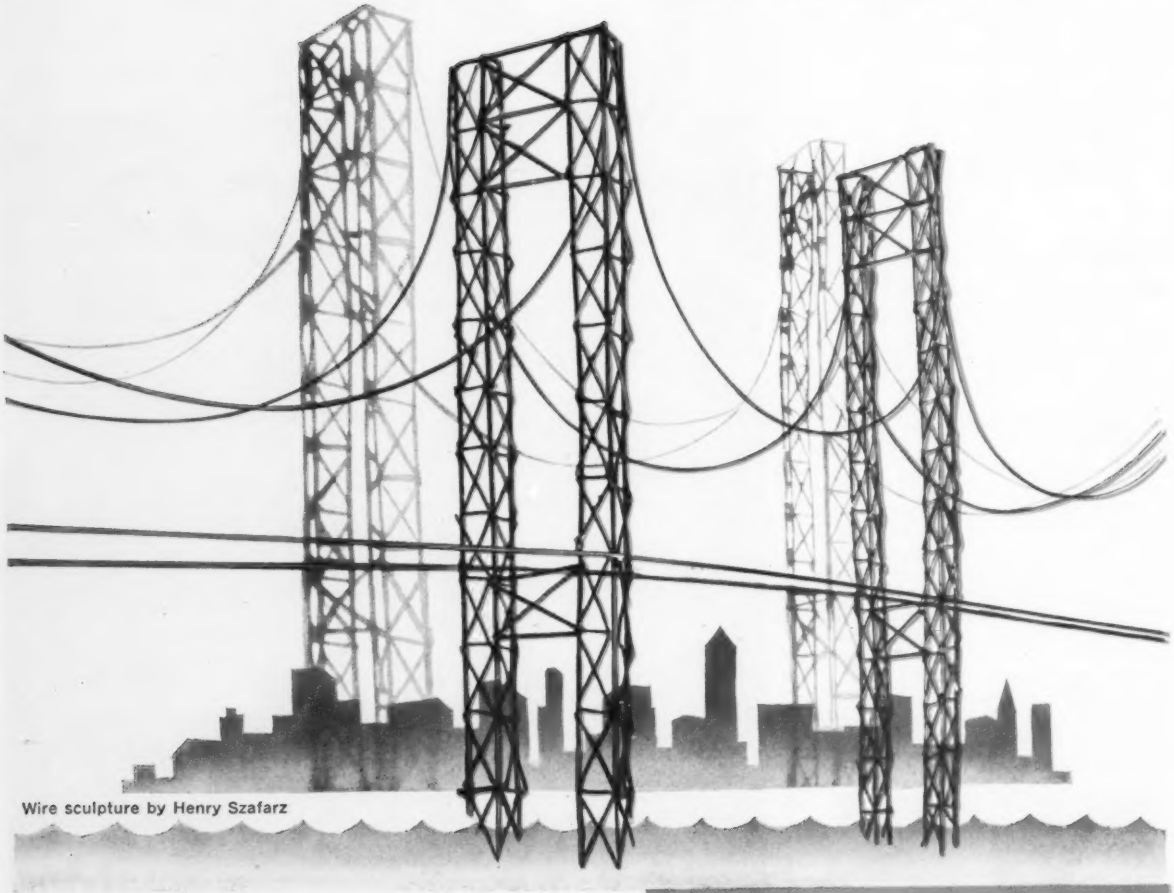
79 Sidney Street, Cambridge 39, Mass.



Wire sculpture by Henry Szafarz

Simplex

LIVE BETTER ELECTRICALLY

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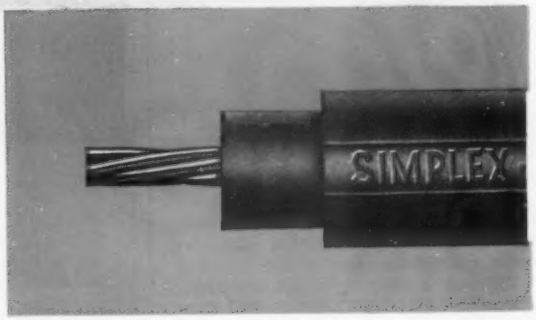


vide a smooth visual transition from one luminaire to another within a continuous row.

In this high efficiency (66%) unit, illumination is evenly diffused over the Plexiglas panel with no perceptible light or dark streaks. This has been accomplished through scientific orientation of lamps, dual reflectors, and the translucent Plexiglas diffuser with a predetermined transmission factor.

Contractors will be especially pleased by the ease with which the Shallorama is mounted. Normal two-screw mounting is used to secure the fixture to the ceiling; leads are pulled through a large (2⅜" x 3") center knockout and connected; diffuser is put in place without use of tools and installation is complete. The Shallorama is particularly well suited for low ceiling installations.

The Shallorama is 24 inches wide; its width conceals the ballast housing above rather than within the fixture. Previously, "shallow" units have carried the ballast between lamps, creating a large, undesirable dark spot on the diffuser surface when illuminated. The ballast housing is "U" shaped so that only a small portion of its metal surface comes in thermal contact with the ceiling when the fixture is mounted. A large air pocket between channel and ceiling is thus formed which insulates ceiling materials from ballast heat and prevents discoloration of ceiling finishes.

Structural rigidity and dimensional stability of the Shallorama are excellent because each component of the fixture is die-formed. All metal parts are Bonderite-treated for long-term corrosion resistance and are finished in high reflectance baked white enamel. The unit is available as a 4-lamp, 48 inch start unit only.

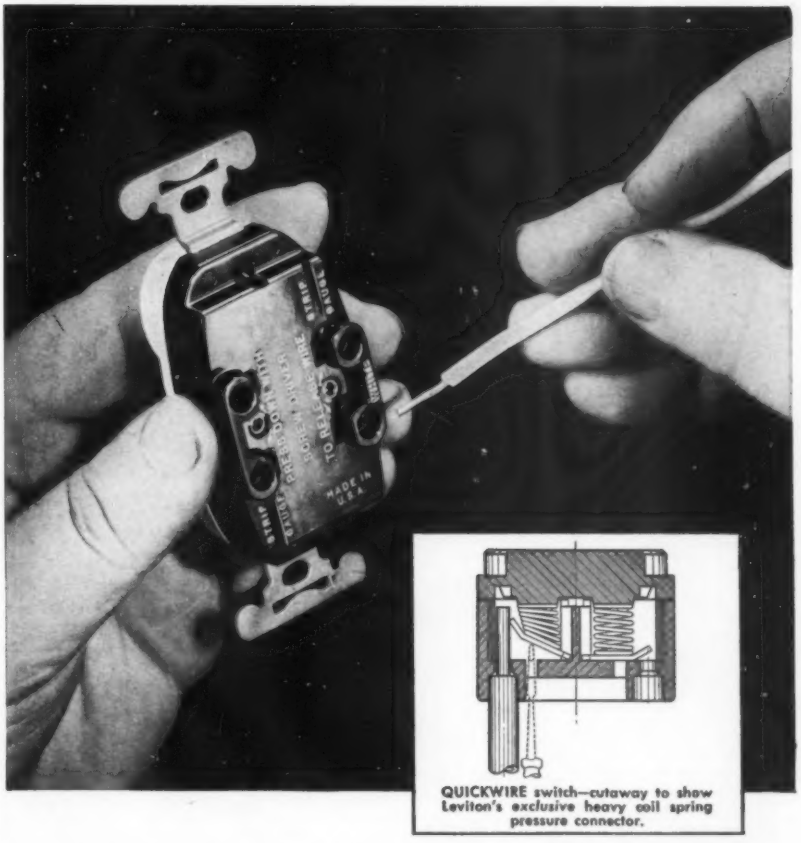
For additional data, ask for item P-334, using the coupon on page 85.

Versatile magnetic relay requires minimum service

A 20-AMPERE MAGNETIC relay, suitable for all fractional and integral horsepower motors used in every type of commercial and industrial application, has been announced by the Arrow-Hart & Hegeman Electric Co., Hartford, Conn. The relay can be used with 80 per cent of all residential central air conditioning units—attic, closet or add-on furnace units. It has a per pole rating which is ideal when adding fan or damper motors, eliminating the need for additional small relays.

Designed to assure minimum contact bounce, and having special silver cadmium oxide contacts, the relay, it is said, will require no service after installation and will last the lifetime of the air conditioning unit on which it is installed.

It is also anticipated that it (300 volts maximum) will be widely used



QUICKWIRE switch—cutaway to show Leviton's exclusive heavy coil spring pressure connector.

EASILY THE BEST!

— Quick and easy installations are done best with

NEW LEVITON Quickwire

spring type, screwless terminal switches and receptacles.

QUICK — because there are no wire loops to make, no screws to loosen and tighten. EASY — because you simply strip the wire and push it into hole. BEST — because Leviton's **exclusive** heavy coil spring connector holds the wire in place firmly, making permanent contact. To release, simply insert a screwdriver into the release hole.

You save time, money, labor costs when you use QUICKWIRE spring lock switches and receptacles. Simple, easy-to-read instructions are molded into the Bakelite on each device. Deeply recessed wire wells prevent exposure of bare wire. Fully enclosed housing, plaster ears, and handy strip gauge marking on each device.

QUICKWIRE receptacles are available in brown or ivory phenolic. Switches have either brown or ivory toggles and the same famous Leviton switch mechanism — known for service and dependability the world over. And both devices meet UL, CSA and Federal Specifications, of course.

Your best jobs are done with... **LEVITON**

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For Best Results Use Wire By AMERICAN INSULATED WIRE CORPORATION

Bending 2" conduit near ceiling on a Thomas Electric Construction Co. job

Make accurate conduit bends right on job with new GREENLEE No. 880 Hydraulic Bender

"Chief reason we bought this new GREENLEE 880 Hydraulic Bender was that it does 'in-place' work . . . and it is easier to transport and set up," reports William J. Reese, president of Thomas Electric Construction Co., Inc., Kingston, Pa.

"Man hours in making bends are reduced one half . . . material loss cut 60% . . . purchase of fittings and manufactured bends reduced 50%," continues the report.

These are the kinds of important time and material savings plus increased working efficiencies you can bring to your jobs, too, with this advanced type GREENLEE No. 880 Bender for ½" — 2" conduit and pipe.

Lightweight . . . easily carried, set up, and operated by one man. Lets you make bends exactly where and when needed. Makes a complete 90° bend with one ram stroke. Easily operated by hand or can be teamed with a GREENLEE power pump for fast production jobs. Write for complete details today.

TOOLS FOR CRAFTSMEN
GREENLEE

GREENLEE TOOL CO., 1783 COLUMBIA AVE., ROCKFORD, ILLINOIS

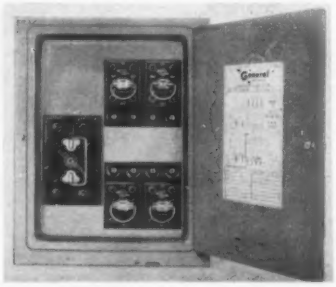
on commercial and industrial heating element loads for such applications as unit heaters, deep-fat fryers, and ovens. The relay is also suitable for handling solenoid valve and other control circuit relay loads for heavy motors and for starting and stopping small motors for power tools, fans and similar items.

Advantages claimed include low wattage consumption, and longer life that will mean a reduction in replacement costs. It is available in 2, 3 and 4 pole, and all standard voltages.

For additional data, ask for item P-335, using the coupon on page 85.

Master disconnect panel for residential services

TO SATISFY the ever increasing demand for more appliance circuits on residential service entrance equipment, the General Switch Co., 45 Roebling St., Brooklyn 11, N. Y., is



now delivering their new 100 ampere master disconnect panel, Catalog No. 1122-08.

Specifically designed for those areas where local electrical codes require the use of a master or overall disconnect switch on residential services, this device has a 100 ampere two fuse master pullout switch. This switch controls eight single pole plug fuse branch circuits useful for lighting and small appliance circuits as well as two 60 ampere and two 30 ampere two fuse branch pullout switches.

For additional data, ask for item P-336, using the coupon on page 85.

High voltage starter accessible from front

A NEW, HIGH voltage starter, Type ZHA (2200-4800 volts), has been introduced by the Electric Controller and Manufacturing Co., division of the Square D Co., Cleveland 28, Ohio. Completely accessible from the front, these starters may be mounted directly against wall or in double rows, back-to-back. Surprisingly compact, the Type ZHA is only 30 inches deep —an important feature where floor space is a factor.

This new starter is self-contained, complete with control transformer supplying low voltage for push-

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PRICE $2.50

Providing Essential Buying Information for Southern Wholesalers, and Utilities.

In compiling this Directory, we have endeavored to furnish the most complete listing possible of all electrical manufacturers in alphabetical order together with their Southern and Southwestern representatives.

For convenience, a number of manufacturers have included cross - reference advertising on their products. This extra service will help locate special facts and specifications and other pertinent product data. So far as we know, this is the first Directory of its kind ever published for the Southern electrical trade.

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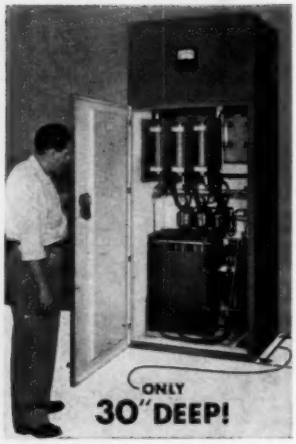


button circuits. When starters are ganged, only one incoming feeder is required. Additional starters can be added as needed, with no sacrifice in streamlined appearance.

The Type ZHA is also available with self-contained bus in an isolated compartment. It is furnished in three interrupting ratings for squirrel cage, synchronous and wound-rotor motors. Class E1 — 50,000 kva (certified). Class E2 — with current limiting fuses and high interrupting capacity contactor. At 2300 volts: 150,000 kva, 3 phase; 60,000 rms amperes asymmetrical. At 4,800 volts: 250,000 kva, 3 phase; 60,000 rms amperes asymmetrical. Valimitor — may be used on a bus of unlimited short circuit capacity, through the use of a contactor with an interrupting rating of 50,000 kva, and reactors which limit any fault current to a maximum of 25,000 kva.

For additional data, ask for item P-337, using the coupon on page 85.

New light source combines fluorescent and cold cathode

A REVOLUTIONARY new light source containing the best features of modern fluorescent and cold cathode has been announced by Colorescent Lighting Corp., 914 Westfield Avenue, Elizabeth, N. J.

The new lamp has the copyrighted name of Tepid Cathode and will operate satisfactorily from either hot cathode slim or cold cathode lighting circuits.

Unlike the cold cathode lamp this new light source can operate on various currents from 100 milliampere to 500 milliampere without any sacrifice of life. Like the hot cathode lamp it is most efficient. Based on 200 milliampere operation, this lamp attains an efficiency rating of 3600 lumens for white, 3500 for standard cool white and 2500 for deluxe cool white—other colors to follow. Much higher light output may be obtained at 300 and 400 milliampere operation.

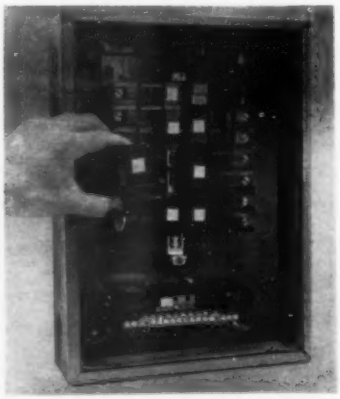
For additional data, ask for item P-338, using the coupon on page 85.

Stab-lok enclosures now sequence bussed

STAB-LOK ENCLOSURES, from the Federal Pacific Electric Co., 50 Paris St., Newark, N. J., are now sequence bussed to meet field requirements for more two-pole circuits.

Two new units, the AB120-1 and 116-1, round out the line of 37 standard and 12 "special application" devices that have been redesigned to make as many as nine 2-pole circuits available for household service. The line features reduced depth 3⅞" boxes to fit standard 2 x 4 "dry-wall" construction, step-type neutral lugs and the exclusive surface-flush enclosure design.

All block units contain combinations of both "E" and "F" slots to allow the insertion of either two single pole or 15 or 20 ampere, ½" wide NC breakers or one single pole 15 to 50 amperes, 1" wide NA breaker in the same amount of space. The enclosures accommodate common trip two-pole 120/240 volt stab-lok circuit breakers in ratings of 15, 20, 30, 40, and 50 amperes.



For additional data, ask for item P-339, using the coupon on page 85.

Glass radiant heater insures greater safety

A 1250-WATT glass radiant heater—designed for use in basements, porches, attics, offices, and factories—which concentrates more heat per square inch of glass surface than other heaters of equal rating, has now been made available by the Berko Electric Manufacturing Co., 212 Jamaica Ave., Queens Village, N. Y.

In addition to greater heat output, the heating panel provides all the safety, ease of operation and economy of installation for which glass radiant

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Don't waste precious skill on old fashioned back breaking methods of pushing tape and pulling wire. Do it the modern, Barth way . . . electrically!

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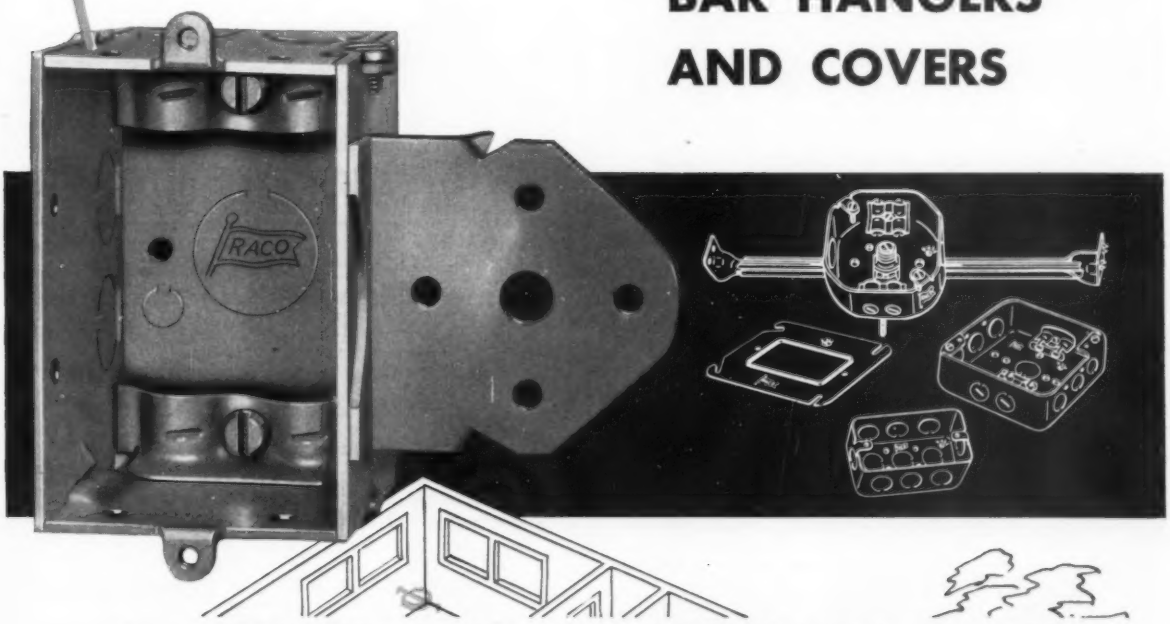

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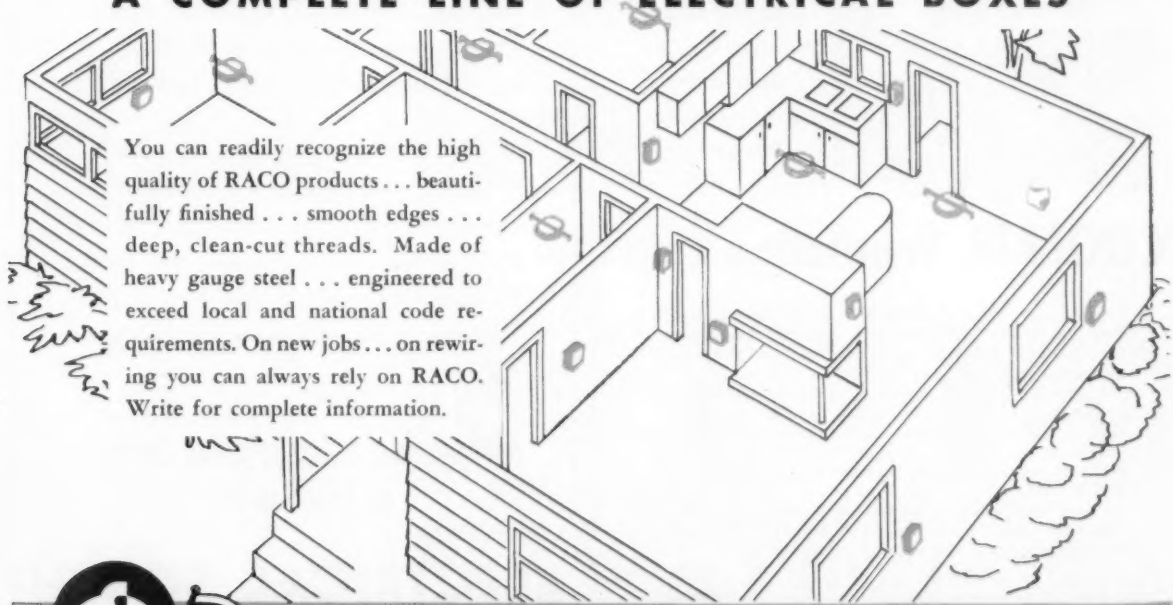

You can readily recognize the high quality of RACO products . . . beautifully finished . . . smooth edges . . . deep, clean-cut threads. Made of heavy gauge steel . . . engineered to exceed local and national code requirements. On new jobs . . . on rewiring you can always rely on RACO. Write for complete information.

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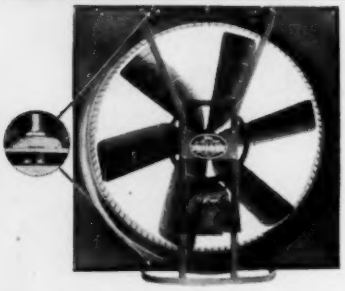

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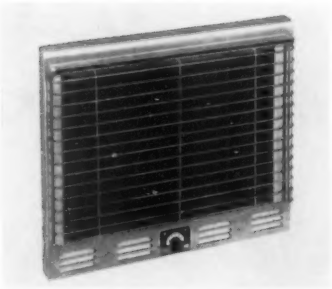


heating has become known. The compact unit is smartly designed and, extending only 3", can be installed anywhere without disturbing room decor. It has a built-in deflector at top that keeps metal frame cool to the touch. Complete safety is further insured by use of Pyrex glass as the heating element which does not glow.

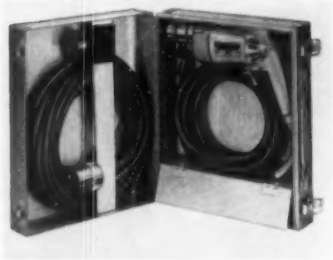
The unit, available with or without a built-in snap action thermostat, is finished in heat resistant satin gray metallic with chrome plated guard.

For additional data, ask for item P-340, using the coupon on page 85.

Electric drill kit comes at sale price

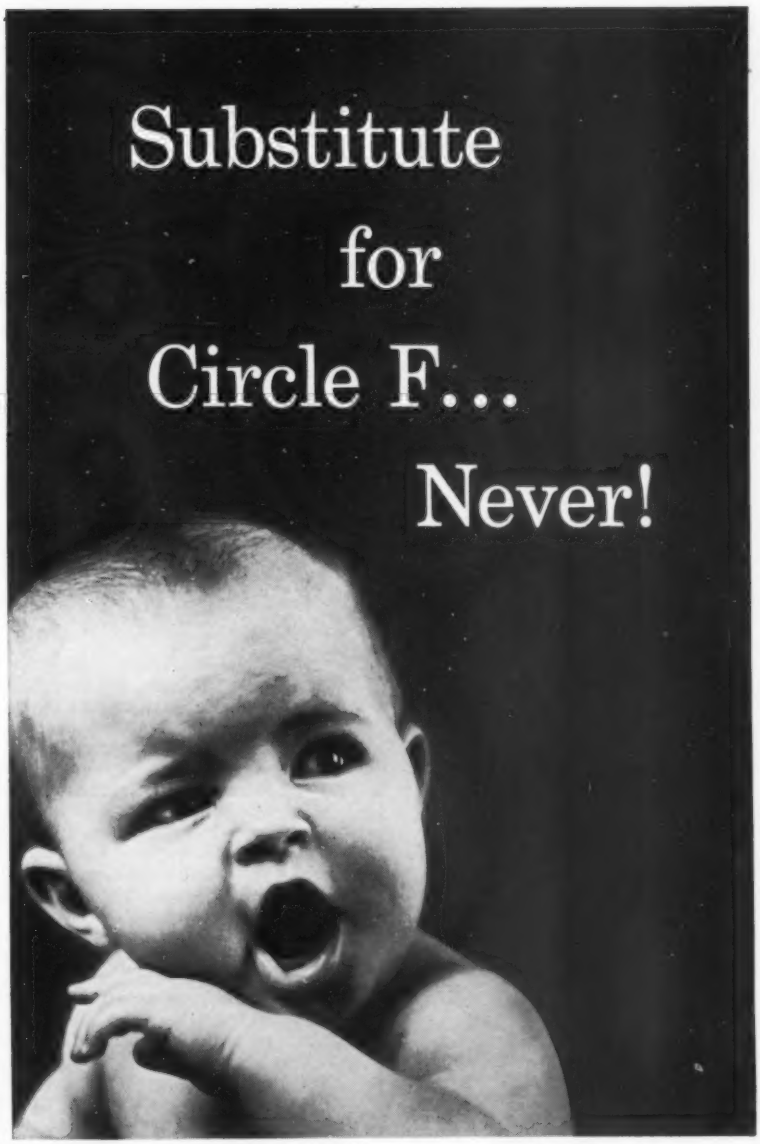
MILLERS FALLS Company, Greenfield, Mass., announces introduction of a new, heavy-duty ¼" electric drill kit, available at a special money-saving price, which is specifically designed to fill the needs of electricians and other professional craftsmen.

Known as the #2200 Journeyman's Kit, it consists of a powerful, indus-



trial-type ¼" drill, a 25' extension cord, and a metal carrying case. Purchased separately, these three items list for a total of $57.00. As a complete kit, they are priced at $52.50, offering buyers a saving of $4.50.

The drill is the popular Millers Falls #220B. It is ruggedly built, with grease-sealed ball bearings used throughout, as well as gears of heat treated alloy steel. Switch is of double-pole design with automatic release and trigger latch. The drill is equipped with a ¼" geared key chuck and has ample power for drilling holes up to ¼" in steel and nonferrous metals and up to 1" in wood when used with modern flat-blade power bits. It has a no-load speed of 1900 r.p.m., is 8⅞" long, and weighs



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Series

INSULATED METALLIC
(Completes the line.)

UNION INSULATING CO.

PARKERSBURG, WEST VIRGINIA

three pounds.

The #22 extension cord is 25 feet long, 18 gauge, type S, three conductor, and has a two-prong adaptor with grounding wire.

For additional data, ask for item P-341, using the coupon on page 85.

Solderless lugs feature diameter size variety

COMPETITIVELY - priced solderless lugs, featuring a wide variety of conductor diameter sizes, has been announced by O. Z. Electrical Manufacturing Corp., 262 Bond St., Brooklyn, N. Y. Conductor diameter capacities range from 14 sol. to 1000 mgm.

The O. Z. ShureLug will be available in single-barrel, double-barrel, and triple-barrel models and in one-hole, two-hole, and four-hole mounting styles, depending upon sizes selected. ShureLugs for #4 and larger cables are available with either hex head or Allen head screws. Smaller sizes have fillister head screws.

The new lugs, carrying UL approval, are produced from a special copper alloy and are cast in one piece, providing great strength, excellent conductivity, and extremely stable operating characteristics, the company claims.

The ShureLug solderless connectors will be distributed through O. Z. Electrical warehouses and stocking distributors throughout the country.

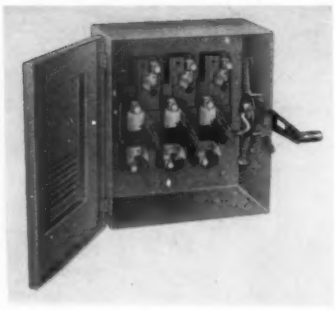
For additional data, ask for item P-342, using the coupon on page 85.

Double-throw switches introduce new designs

INDUSTRIAL double-throw safety switches for 240-600-volt ac or 250-volt dc service has been announced by Federal Pacific Electric Co., 50 Paris St., Newark 1, N. J.

Features engineered into the new designs, according to the company, include quick make-break mechanism that reduces arcing and lengthens blade life, silver plated current-carrying parts, visible dual blade construction, individual porcelain block assemblies, and a minimum number of joints per pole to reduce heat generation and switch maintenance.

Two-pole and three-pole units are supplied as fusible or non-fusible



equipment in NEMA #1 enclosures. Fusible units are supplied with patented high pressure fuse holders that minimize contact resistance. Heavy gauge steel enclosures have interlocking covers, are anti-rust treated and finished with a tough, durable baked gray enamel.

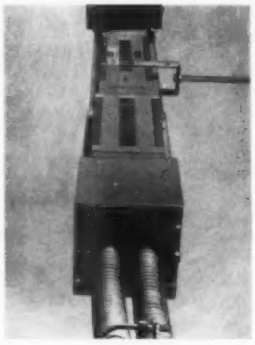
For additional data, ask for item P-343, using the coupon on page 85.

Power distribution system combines unique features

NEW UNI-BUS power distribution systems available from Westinghouse Electric Corporation, Pittsburgh, Pa., combine low-impedance characteristics and plug-in construction. Their flexible construction permits significant savings in layout and installation.

Special plug-in units and interlocked plug-in opening covers provide maximum safety during installation and relocation. Bus bars are covered until the plug-in devices are fastened to the busway over the plug-in opening.

Interlocked, silver-plated contacts operate so that it is impossible to interrupt the current with the contacts. The switch or breaker must open the



circuit before the contacts can be removed from the bus bar and the cover of the unit can be opened. Although no live parts are exposed when the cover is open, the contacts in the open position are visible for positive identification.

Corprene separators and liners provide a resilient mounting which clamps the bars sufficiently to permit vertical mounting. At each joint,

phase collection provides load equalization and high short circuit strength with approved ratings up to 50,000 amperes RMS.

Flexible connectors consist of two attachment boxes joined with flexible conduit and cable. The one unit reduces the number of special fittings usually required and eliminates the need for detailed field measurements.

Uni-bus 3-pole housings are the same for all ratings; they measure 3½-inches by 7¾-inches. Uni-bus busways are available in copper or aluminum with single run ratings of 225, 400, and 600 amperes in 2-, 3-, and 4-pole housings. An 800-ampere rating is available in copper only.

For additional data, ask for item P-344, using the coupon on page 85.

Indoor, outdoor ballast for VHO fluorescence

A COMPLETE LINE of indoor and outdoor ballasts for both 0 and 50F operation of two 48- and 96-inch Power-Groove and Very High Output fluorescent lamps is now available from the General Electric Co., Ballast Department, Schenectady 5, N. Y. The new high intensity lamps produce a light output much greater than conventional fluorescent lamps of comparable size.

Highly reliable starting of two F48TG17/RS Power-Groove or two F100T12/RS/VHO-25 lamps down to 0 F is provided by two companion ballasts. The ballast and its auxiliary are designated 89G767 and 89G768.

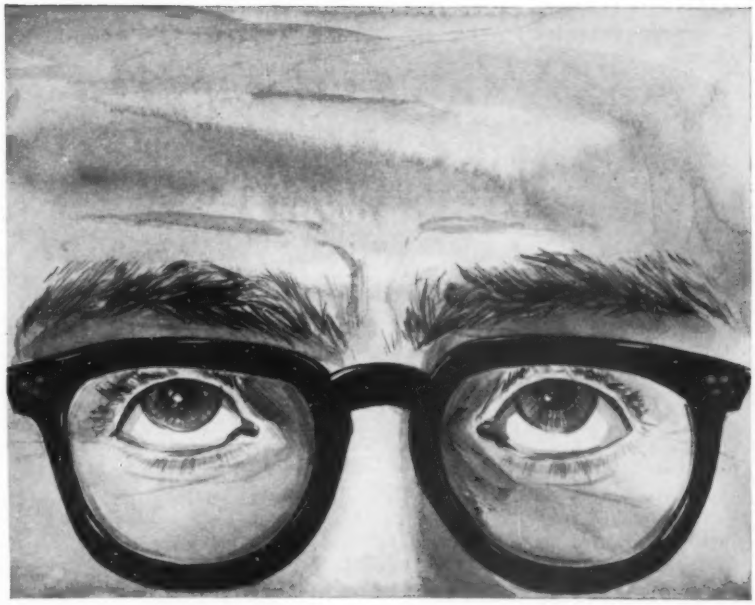
Two auxiliary pairs have also been developed for indoor and outdoor operation of two F96TG17/RS Power Groove or two F200T12/RS/VHO-25 lamps.

Cat. #89G732, developed for indoor operation of two F48TG17/RS Power-Groove or two F100T12/RS/-VHO-25 lamps, is also now available.

Operation of the high intensity lamps with two ballasts instead of one provides a more suitable distribution of heat from wattage losses and ballast weight than with any other ballasting technique now known, according to General Electric engineers. As with 800 ma rapid-start systems, care should be exercised by fixture manufacturers in applying these new ballast-lamp combinations. Heat generation is high due to high lamp wattages, high current levels, and increased watts loss of the ballast.

General Electric recommends that manufacturers make temperature measurements in their fixtures so that surface temperatures of the ballast will be within warranty limit of 90 C. Pendant type fixtures mounted eight inches or more from the ceiling with the bottom and top of the fixture open and no lamps positioned directly below ballast are recommended.

For additional data, ask for item P-345, using the coupon on page 85.



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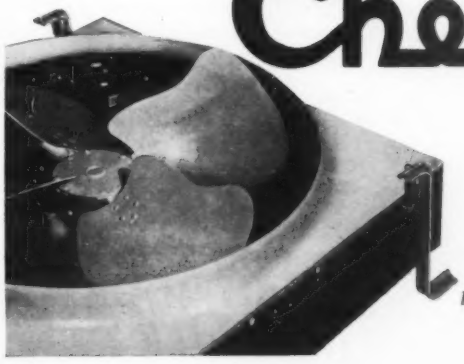
Whether you're looking for minimum cost home cooling or a complete air conditioning installation — *don't overlook Chelsea attic fans!* . . . Completely practical for any home when used alone, attic fans used in conjunction with air conditioners increase cooling efficiency so tremendously that smaller, less expensive conditioning units can deliver specified performance . . . Now, join the ever increasing group of contractors and builders who have used Chelsea attic fans to increase both profits and sales appeal!



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PLAINFIELD, NEW JERSEY
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AD 59-21

Revised trademark aids recognition

THE SUPRO LUX Manufacturing Co., 406D E. 161st St., Bronx 51, N. Y., announces redesign of its trademark for faster recognition of its brand name. The new trademark will appear on all

the manufactured line of the company, including fluorescent lamps, tubing for neon signs, safety-seal neon sign electrodes, cold cathode lamps and blanks, and other gases.

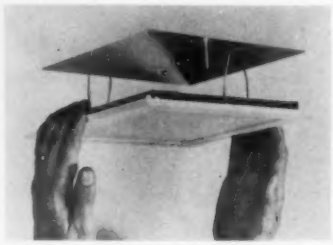
For additional data, ask for item P-346, using the coupon on page 85.

Improved hinging system for torsion type spring fixtures

THE NEW Marco Traxion hinge, intended primarily as a replacement for the torsion spring now being used in all Marco housings, has been developed by Marvin Electric Mfg. Co., 648 S. Santa Fe Ave., Los Angeles 21, Calif. This new, improved hinging system will be eventually incorporated into all Marco fixtures now utilizing the torsion type spring.

This new Traxion hinge is said to be superior in function and design to the torsion spring and eliminates many of the handling problems formerly associated with the torsion spring.

The main advantage of the Traxion hinge is the elimination of the hooks



(or barbs), which have been a problem on the torsion hinge, and the smoothly contoured wire loop simplifies installation.

For additional data, ask for item P-347, using the coupon on page 85.

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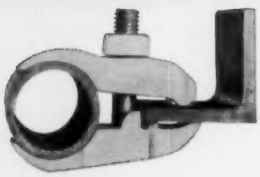
FLOOR BOXES • WIRING SPECIALTIES



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Cable Supports
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"Latrobe" Pipe or Conduit Clamp

This clamp is made of highest quality malleable iron, with a double safety bite of case hardened tool steel and is cadmium plated to prevent rust. Two models—one for Right Angle and the other for Parallel support. Each model comes in 10 sizes to handle pipe or conduit 1/2" thru 4".

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Maintenance

(Continued from page 52)

Special tests of this nature are made at various locations at frequent intervals as required by changing conditions.

Cable insulation resistance tests are made on 4 kv and 13 kv feeder cables at two year intervals. The tests are made during the minimum load period to locate and repair incipient cable faults, which if allowed to occur during the heavy load period could result in overloading and possible damage to other feeder cables.

Tests voltages of 15 kv and 30 kv d-c are applied to 4 kv and 13 kv feeder cables, respectively, between the conductor and sheath for 5 minutes. A Biddle Cable Test Set is used as a mobile source of high voltage direct current.

Construction budgets

(Continued from page 45)

Texas will double its use of electricity by 1961.

Most of the proposed five-year outlay will go for the construction of power plants, new transmission lines and expanded distribution facilities, Bates said.

New generating units for CPL power plants are expected to cost over $45,000,000 and will almost double the company's system generating capability by 1961. Construction is already underway on CPL's new J. L. Bates Power Station at Mission, Texas, which will be ready for service by early 1958. Initial generating capability at this plant will be 75,000 kilowatts.

Distribution improvements

CPL plans to spend almost $44,000,000 during the next five years for the construction and improvement of distribution facilities. Another $25,000,000 has been allocated for building new high voltage transmission lines, which connect CPL power plants and load centers. The remainder of the planned expenditure will be used primarily for the construction and improvement of CPL offices and other facilities.

M. H. Lovelady, CPL vice-president and chief engineer, said the new company expansion plan calls for the installation of a 175,000-kilowatt turbo-generator in 1959, and a 110,000-kilowatt generating unit in 1960. Another 110,000-kilowatt generating unit

is expected to be ready for service by 1961. The exact location of the latter three units has not yet been determined.

Another speaker at the CPL conference, Vice-President N. A. Easter, predicted that total use of electricity will double in the five-year period ending with 1961. The company's five-year outlook indicates that kilowatt-hour sales in 1961 will approximate 4,500,000,000, compared with slightly over 2,000,000,000 in the year just past.

Know the law

(Continued from page 40)

create an offense to which criminal sanctions are attached. The regulations can be changed any time at the will of such parties and at the whim of the license inspector, whoever he might be. They fix no ascertainable standard whereby an electrical contractor may be governed."

The California court refers specially to similar decisions reached by the supreme courts of Kansas and Arizona.

In the Kansas case—Scott v. Crawford, 177 Pac. 360, 2 A. L. R. 880—the Supreme Court declared to be void a state statute that provided, "All electric wiring shall be in accordance with the National Electric Code." The court said that if a state could punish property owners for noncompliance with rules adopted by an unofficial organization of private persons, "a situation would arise where owners of property with considerable persistence might learn what these Code rules were, and incur the expense of making their property conform thereto, only to find that the National Fire Protective Association had reconvened in Chicago, New York, or New Orleans, and had revised the Code, and that the work and expense had to be undertaken anew. And there would be no end of such a state of affairs. Furthermore, there is no official way, indeed no practical way, for the average property owner to know what these Code rules are. . . If the Legislature desires to adopt a rule of the National Electrical Code as a law of this state, it should copy that rule, and give it a title and an enacting clause, and pass it through the Senate and the House of Representatives by a constitutional majority, and give the Governor a chance to approve or veto it, and then hand it over to the secretary

of state for publication."

Upholding other requirements of the ordinance, the Court of Appeal said:

"Plaintiff also challenges the validity of sections of the ordinance which provide for use of used material with the approval of the electrical inspector (section 5 (c)); require that the maker's identification symbol shall be placed on all electrical equipment (section 5(d)); provide that no two-wire service shall be connected to a three-wire service without the written approval in advance of the electrical inspector (section 9(b)); provide that disconnecting means shall be of a type approved for service equipment and for prevailing conditions (section 9(g)); provide that no deviation may be made from the installation described in the permit without the written approval of the electrical inspector (section 23(d)).

"The legislative body of a municipality may commit to an administrative officer the power to determine whether the facts of a particular case bring it within a rule or standard previously established by the legislative body for his guidance. . . It is well settled that the Legislature may commit to an administrative officer the power to determine whether the facts of a particular case bring it within a rule or standard previously established by the Legislature for his goverance."

The court referred to a decision of the California Supreme Court and concluded:

"Gaylord v. City of Pasadena, 175 Cal. 433, 166 P. 348, held [decided] that a municipal ordinance delegating to the city electrician the power of determining whether an electrical installation in a building is dangerous to life or property, without defining what conditions he must find to exist before he determines that the installation is unsafe or dangerous, was not void as unwarrantedly conferring on that officer legislative powers or because its terms were either indefinite, arbitrary, or oppressive. The court said that from the very nature and character of an electrical apparatus, it would be impossible for any ordinance to define what conditions the city electrician must find before he determined that the electrical apparatus was unsafe or dangerous without working in many instances the very oppression which its language, necessarily general, was designed to prevent; that it is presumed the city electrician is competent and that he will act fairly.

"We think sections 5(c), 9(b), and 9(g) come within these principles and that they are merely administrative regulations to promote the purposes of the legislation and to carry it into effect. They are valid. The purpose of section 5(d) and that part of section 21 relative to stating the manufacturer's name or trademark on certain materials may be to facilitate repair, replacement of parts, or fix responsibility for safety. It is apparent that certain standards of quality in electrical fixtures are reasonable demands in the interest of public safety. Thrift Hardware & Supply Co. v. City of Phoenix, 71 Ariz. 21, 222 P.2d 994, 996, 22 A.L.R.2d 810. We cannot say, as a matter of law, that those provisions are unreasonable. They are valid."

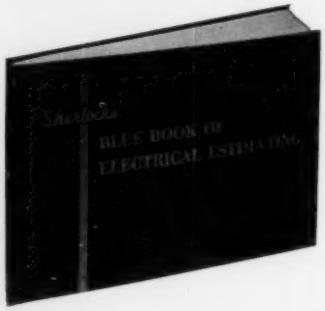
Business citizenship

(Continued from page 36)

earned. It rarely, if ever, can be bought. Certainly, one of the important facets of good public relations stems from good employee relations. In fact, the importance of the employee in today's business world is such that, a business which does not recognize the dignity of the individual and does not strive to understand their motivations cannot for long survive.

Until recent years, an executive's value was measured by his ability to deal effectively with problems in the traditional management areas of finance, production, and sales. Today, however, he must not only meet and solve those problems, but must cope with a new and even more difficult problem that has arisen for the executive, that is, meeting and solving the complex problems of human relations. . .

It makes all the difference in the world, when we as businessmen, in this day of science and technology, recognize the dignity and importance of the individual; when we know why men work; when we are live and alert; when we practice the Golden Rule and declare that in our business there shall be uniformly fair and



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March, 1957

courteous treatment; regularity of employment, to the greatest extent possible; equitable pay; satisfying surroundings; jobs that have meaning and purpose and that provide opportunity for growth and development.

Businessmen should try not to be self-centered, but to think of others and try to see their point of view. Some call this the Golden Rule. In business and industry, it is basic in our relations. In fact, human relations have become so important in our daily contacts that if someone were able to develop a Golden Rule serum which could be injected into the bloodstream—so people could live and work in peace and harmony—it would be a far greater discovery than atomic energy. . .

A good New Year's resolution for all businessmen, therefore is to determine that all their deeds and statements throughout the coming year will be such as to merit the trust and confidence of the American people. Such as will portray business as a force for good—a constructive, forward-looking humane force which has as its objective the promotion of the national well-being.

Religion and business

Richard J. Davis, former editor of *The Christian Science Journal*, says: "Many men and women are speaking of religion today, and this necessarily brings forth the question, 'What is religion?' . . . The essence of religion is what we are thinking and living. . . A man who loves God loves good, and if he loves good he will be good. Doing good, he will see that good evidenced in his business, his home, his attitudes toward his community, his country, and as far as his mental horizon permits."

Under the influence of a religious concept business-citizenship will attain greater importance.

Baseboard wiring

(Continued from page 40)

out recourse to any additional support.

Mounting holes in the base provide for easy installation of the system. ¾-inch knockouts in the base of the duct facilitate wiring operations. One electrician, working alone, is reported able to handle the complete installation of the system.

The raceway in the lower area of Baseduct is sufficiently roomy to house a maximum number of wires

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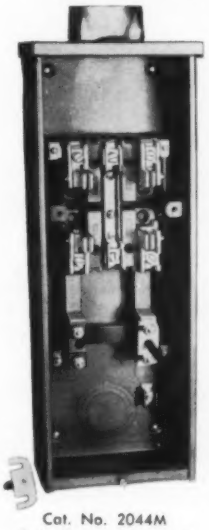

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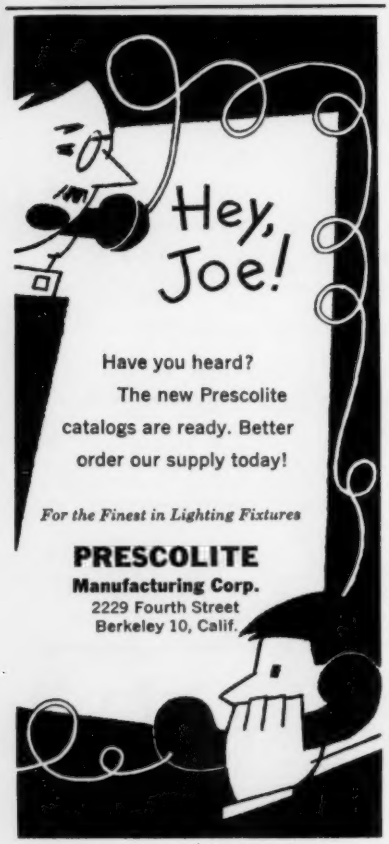

for all normal branch circuit requirements. Wires are contained within the body of the duct without retaining clips or similar accessories. Retention of the receptacle harness within the duct is not dependent on the cover. Capping may be installed and removed as often as necessary without disturbing the receptacle wiring harness or other conductors. The patented receptacles which feature "straight-through" passage of wire permits installation of the multi-outlet assembly without either screws or weld points.

The Baseduct system is finished in National Electric Products Corporation's satin gray and can be easily painted to achieve any other desirable color or color combination. Baseduct is listed by Underwriters' Laboratories, Inc.

Lighting sales

(Continued from page 25)

They attribute this to stimulated sales to the existing home market as a result of the Light for Living program.

Additional tests again emphasized importance of the most vital link in the Light for Living program—the lighting center. The lighting center is a retail establishment where customers can purchase all types of lighting equipment, obtain planning and decorating assistance, the services of a wiring contractor, and receive credit for purchases. A few dealers have already boosted sales by establishing such lighting centers but many more are needed.

Coordination necessary

Test operations have shown need for intensifying work toward coordinating dealer action. When utility advisors do their jobs well, dealers find no need to substitute lower priced, inferior merchandise. Cooperating dealers in test areas also found consumer impact stronger when they tied-in their promotion and advertising with the Light for Living program.

The utilities reported addition of more than 30 watts per customer in new home lighting during 1956. This achievement means that both companies have kept in sight the objectives originally set forth in the program.

Specific accomplishments show that one company lighting team sold 1,095,000 watts new lighting load in 1956 as compared with 539,500 during the previous year. Another company team, working in a smaller test market, sold 852,500 watts, against 288,100 watts in 1955.

Total kwh sales by lighting staffs of both companies, together with estimated builders sales, compare favorably in 1956 with those in 1955, in spite of decline in home building. Sale of 5,165,200 kwh in 1956 was over the 4,969,100 kwh level in 1955, while home building in 1956 declined about 44 per cent.

Detailed estimates

(Continued from page 20)

material for the job are concerned, Ward's places the order for every bit of material and equipment immediately upon receiving the contract.

Get prices before bid made

"We place the order with that supplier who gives us the lowest quote," said McMichael. "We're in a better bargaining position with the wholesaler before the job is bid, unless we price it ourselves from our current catalogs, which we deem a most important ally in estimating."

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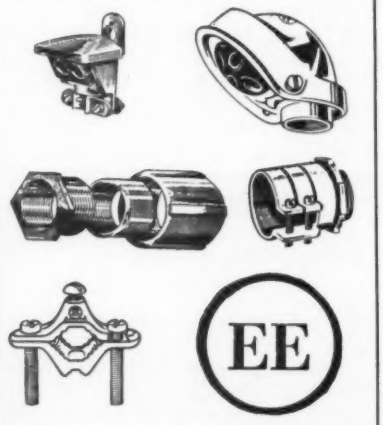

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Said Jim Ward, president of this Florida concern: "It isn't that we want to beat the wholesaler down. If we have no quotes, we run up a complete bill of materials and ask for quotes, and place it with the lowest-quoting wholesaler just as we do for customers."

Ward's watch the job in progress on a day-by-day and weekly basis with an eye to the man-hours and amount of material used, to keep a running account of how the job tallies with the estimate. "This helps keep a job from going sour," said McMichael.

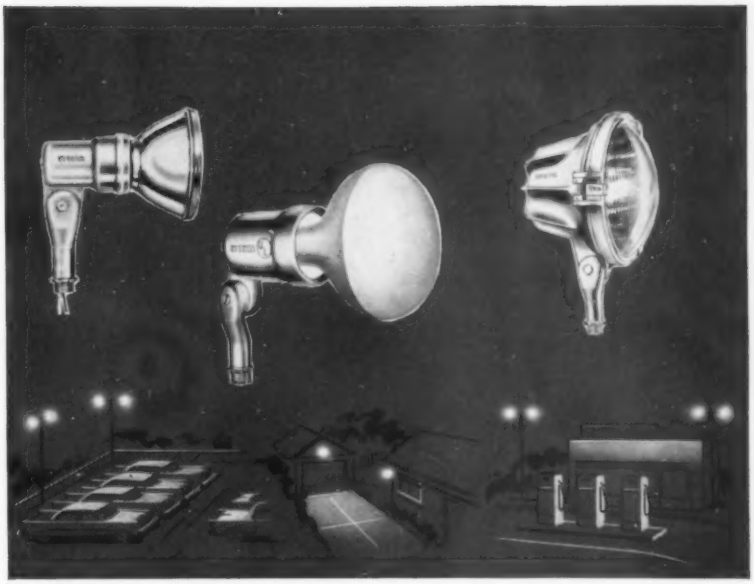
Special factors

"For instance, we allow from 2 to 10 per cent for general contractor efficiency. Certainly the general contractor on the job can make or mar the profit picture. Perhaps he hasn't the foresight required on the particular job, so we're left in the dark or confused, or he may be the type who creates animosity among the various trades employed, and among our own workers. Unhappy men don't produce as they would if the job is scheduled for on-time completion. After a few jobs with a contractor, we can estimate his calibre, and we allow this figure of 2 to 10 per cent of total production hours as a measure of what he'll cost us in wasted time."

This realistic appraisal is evidenced in one job which carried 7,421 man-hours. With the GC figured at 2%, the bare minimum, since Ward's knew his capabilities, McMichael estimated an extra 148 man-hours needed.

This estimator also carries a Job Factor in his bids. This varies with the type of construction which can pose varying difficulties for wiremen. This is a hard and fast 2% of the total number of production man-hours.

Using such labor units as 3.1 man-hours under ideal conditions to install 100 feet of ½" EMT surface mounted on wood, conduits are taken off the exact length of the run with the number of wires and their size in each run, as well as the number of fittings per each run. There is no allowable deviation here, and run by run and circuit by circuit, the figures are compiled onto separate sheets for all conduit and wire. Since it takes one coupling for every 10 feet, the cost of these is duly recorded. So it goes for every page of the prints. Similarly, man-hours are recorded for the various op-



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erations, to get the total number of productive hours.

Non-productive hours are such labor hours as the general electrical foreman's time and other supervisory personnel. The job factor of 2% is recorded and this depends upon whether the job was laid out by a registered electrical engineer or if it isn't, and may be such a shoddy layout as to necessitate McMichael himself doing the layout work.

Not to be overlooked in estimating are such job expense items as the following taken from a $67,000 wiring job:

Sales tax	$789.99
Trailer used as tool shed	50.00
Permits	500.00
Temporary light and power	150.00
Loss of tool (1% of man-hours)	131.00
Insurance, etc.	

Typical job bid

A breakdown of this typical job is as follows:

Materials cost	$37,221.62
Labor cost	13,348.20
Job expense	2,737.71
	53,307.53
Overhead, 15%	7,996.13
	61,303.66
Profit, 10%	6,130.37
ESTIMATE	$67,434.03

The labor cost was arrived at in this way: The actual labor hours were estimated at 3,874.55. To these actual production hours was added 480 non-production labor hours, a 2% Job Factor representing 77.49 labor hours, and a 2% General Contractor Factor of 77.49 labor hours, making a total of 4,509.53 man-hours.

The crew on this job included the following:

1	gen. foreman @ $3.95 —	$ 3.95
2	foremen @ $3.70 —	7.40
10	journeymen @ $3.20 —	32.00
4	apprentices @ $1.76 —	7.04
	hourly rate for crew —	50.39
	average rate per man —	2.96

Applying the average rate per man of $2.96 per hour to the total estimated man-hours of 4,509.53 gives a labor cost of $13,348.20, as used in the tabulation above to arrive at the estimate.

The Ward company is receptive to the purchase of any tool that will make work easier for its employees, and these are discussed at periodic dinners held with all personnel. From these meetings stem many worthwhile ideas. For example, a purchasing order system was evolved that gives each foreman a book with his special number on it.

If he requires some item of which the firm's ample stockroom happens to be short, he is authorized to pick it up at any supply house to save time.

The meetings tend to provoke discussions on every employee level and often help materially in aiding the estimating problem.

Packaged power

(Continued from page 23)

replace three for seasonal operation.

Improved operations

The cooperative believes this off-peak rate has improved the over-all operations of the system by increasing the load factor. It permits the system to serve more horsepower for irrigation without increasing the system capacity, thereby producing additional revenue from existing investments. Too, the cheaper rate, with motor rental feature, has helped sell irrigation to many small farmers who have looked upon irrigation as something out of their class.

The off-peak rate has also acted as a protective measure, assuring the continued use of irrigation equipment purchased during the years before acreage control. During 1955 the cooperative learned that farmers were selling their large horsepower motors because they could not afford to pay 40- and 50-hp demands for irrigation of small acreage. These motors were being sold to persons or firms outside the area served by the Cooperative, leaving it with an investment in transformers, meters, and devices to serve a load that was eliminated by the acreage control program.

With this promotion the cooperative had an eye on a potential load being promoted in the area, with more and more farmers turning to fish farming, and building reservoirs for duck hunting on the idle acres.

In most cases abandoned irrigation wells are available for flooding these ponds and the electrical facilities are already installed.

Advantages accrue

Although there are many ways in which the off-peak service has affected our operations, we would like to point out the following:

(1) The peak in irrigation service was in August when we served 110 wells under the regular irrigation rate and 53 under the off-peak rate. The totals for the year were 453 monthly billings under the regular rate and 255 billings under the off-peak rate. Under the reg-

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ular rate we sold 3,724,311 kilowatt hours for $61,556.23 and under the off-peak rate 1,268,065 kilowatt hours for $17,119.38, making a total of 4,992,376 kilowatt hours with a revenue of $78,675.61. This increase in irrigation along with a continued increase in the average kilowatt hour consumption per farm home made 1956 our largest in revenue. The total revenue for 1956 was $329,559.10, exceeding our previous high of $314,-367.78 in 1954.

(2) By having an off-peak rate to offer all irrigators we were in a position to keep many of the old irrigation consumers on the regular rate just from their knowing that they could be connected at a cheaper rate when they requested it.

(3) The off-peak rate enabled many farmers to use idle rice wells for row crop irrigation.

(4) This rate, along with our policy of renting and financing motors, enabled other farmers to install irrigation equipment for row crops. (The program for renting and financing motors has added 2250 horsepower to our system.)

(5) In our promotion of off-peak service we stressed the fact that it could best be used by those members who already had water storage facilities. One month's use of off-peak service convinced many of our members of the need for adequate water storage facilities. Reports show that many farmers are now considering such storage facilities.

(6) Off-peak power has enabled many of our sportsman members and friends to flood flat lands and rice fields for duck hunting.

Radiant heat

(Continued from page 21)

Also, we make personal calls on architects, builders and remodeling contractors to talk about radiant heat. We leave them literature on electric heating, and when a job arises in which auxiliary heating is needed, they call us in to talk to the customer. Frequently in new houses a recreation room may have to have this form of supplementary heating

We have placed tall narrow panels of radiant heat with thermostat controls in the bathrooms of new houses where the bathroom was made comfortable during periods before the main heating plant was put into operation.

Our direct mail program includes radiant heat literature from the factory sent out three times a year to some 250 builders, architects, government agencies and homeowners.

In the late fall we have used newspaper advertising on supplementary electric heating, stressing its convenience, comfort, safety and economy. We have also had cooperative newspaper advertising with manufacturers on ceramic panels bi-monthly through the fall and winter.

But by far the most gratifying results have been from personal calls. Only a few months ago in a chat with a builder I casually mentioned radiant heat. Recently in putting an addition to his house, he recalled our conversation. That casual chat yielded four rooms, a total of six heating panels in one installation. He was so pleased with the results that when his clubhouse expanded, he talked radiant heat, and another job for us followed, resulting in the sale of 5 more radiant panels.

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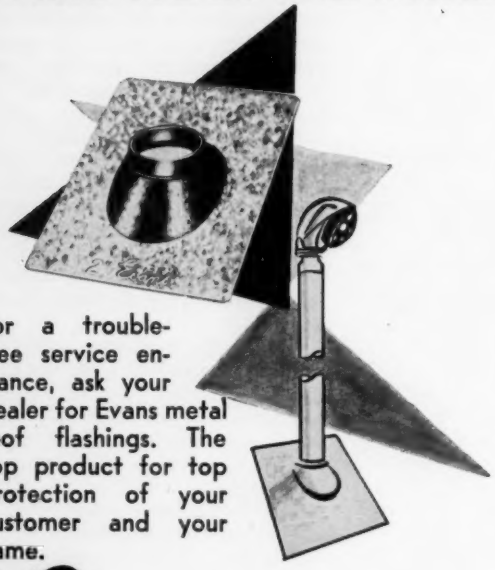

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PRE-WIRED

VENTILATING HOODS

PATRICIAN VENTILATING HOOD

Budget priced packaged unit complete with AF-7 Ventilator, light and double light/ventilator switch. 5 standard lengths in satin chrome and copper tone. Standard model has Ventilator at left; available center or right; also colors.

STATIONARY VENTILATING HOOD

Stunning modern design prewired with 3 speed control and light operated by Touch-Bar. For use with Trade-Wind 3501; or with 2501 or 1501 Ventilator and slide filter. 5 standard lengths in brushed copper (it's real!) or stainless steel.

SALEM VENTILATING HOOD

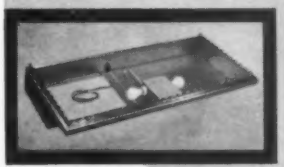
Beautiful Early American design in antique copper (it's real!) pre-wired with 3 speed control and light operated by Touch-Bar. For use with Trade-Wind 3501; or 2501 or 1501 Ventilator with slide filter. Available in 5 standard lengths.

for QUICK, EASY INSTALLATION!

You make just one electrical connection and a Trade-Wind Ventilating Hood is ready to use! Trade-Wind pre-wires each hood at the factory, making all connections to the light and control switch.

In addition, both the Trade-Wind Salem and Stationary Hoods are now equipped with special break-away tops which are cut out and scored to take any of the 3 Trade-Wind Ventilators (Models 3501, 2501 and 1501). The Ventilators can be located either at the left or right side of the hoods. All the Ventilators have Slide Filters for easy cleaning.

The Patrician is supplied as a complete package with the AF-7 Ventilator. All hoods are easily installed without special tools.



IT'S A SNAP! Simply break-away top to fit any Trade-Wind Ventilator at right or left side. Light and control switch completely pre-wired.

ANOTHER TRADE-WIND EXCLUSIVE Touch-Bar control for both light and 3 speed switch on Salem and Stationary — eliminates confusing array of colored buttons.

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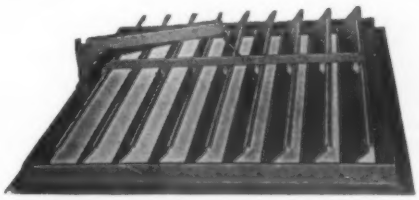

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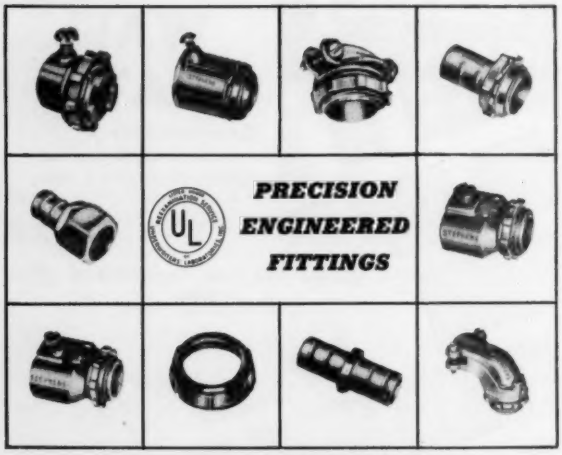

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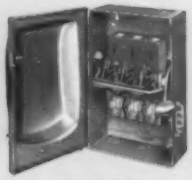
FIRST with a COMPLETE LINE OF SAFETY SWITCHES to meet the NEW NEMA STANDARDS

• The table below shows Square D switches meeting new industry specifications. Notice how they clarify conflicting features which existed under old designations. Notice, too, that they establish a new, heavy-duty industrial switch, Type HD.

One important thing which remains unchanged is the **DESIGN LEADERSHIP** which has made **SQUARE D SAFETY SWITCHES** industry's overwhelming **FIRST** choice for more than fifty years. Compare them, feature for feature. They cost no more, why settle for less?

TYPE HD



TYPE ND

TYPE LD

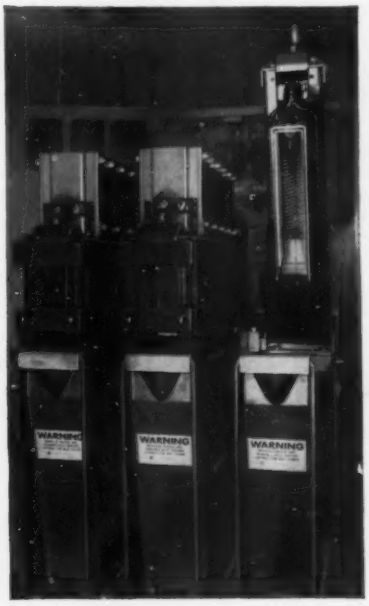
DESCRIPTION	HEAVY DUTY New	NORMAL DUTY formerly Types H, S, or A	LIGHT DUTY formerly Types D or G
Rating-Ampere Voltage	30—600 250 or 600V AC, DC	30—1200 250 or 600V AC, DC	30—200 250V AC
Enclosure	NEMA 12 • Industrial Use (Gasketed) NEMA 4 & 5 • Water-tight & Dust-tight NEMA 7 • Explosion-resisting Class I—Group D NEMA 9 • Explosion-resisting	NEMA 1 • General Purpose NEMA 3R • Raintight	NEMA 1 • General Purpose NEMA 3R • Raintight
Horsepower Rating	NEC Fuse Ratings Dual-Element Fuse Ratings	NEC Fuse Rating Dual-Element Fuse Ratings	NEC Fuse Rating
Operating Mechanism	Quick-Make, Quick-Break Independent of Handle	Quick-Make, Quick-Break Independent of Handle	Positive Make, Positive Break Spring Assisted
Cover	Interlocked & Padlock Attachment	Interlocked & Padlock Attachment	Padlock Attachment
Plating—Current Parts	Extra-Heavy Silver	Silver	
Endurance	Maximum Endurance Far Exceeds UL Standards	Exceeds UL Standards	Meets UL Standards

NOW...EC&M PRODUCTS ARE A PART OF THE SQUARE D LINE!

SQUARE D COMPANY

METAL-CLAD SWITCHGEAR

PURIFIED PORCELAIN in horizontal and vertical bus supports, primary disconnect bushings and caps and epoxy in bus joint covers provide excellent insulation, prevent fires in 15 kv I-T-E metal-clad switchgear.



EPOXY AND SPECIAL CERAMICS protect personnel and equipment by preventing fires in the circuit breaker section. Arc chute rear supports and blowout coils are epoxy. Jump gap cooling plates, arc chute liner plates, arc plates and spacers are special ceramics.

Only the finest fire-protective insulating materials

Nonflammable porcelain and ceramics, flame-resistant epoxy, and other flame-retardant insulating materials throughout, are among the extra values you find in I-T-E Metal-Clad Switchgear. Purified porcelain, of which the primary disconnect bushings and caps are made, also supports both vertical and horizontal bus. It is nonflammable, has high dielectric strength, won't track or deteriorate, is inherently contamination free.

Epoxy, which can be molded into complicated shapes, forms arc chute rear supports, blowout coils, bus joint covers, potential and current transformers. It has high mechanical and dielectric strength, is nontracking and extremely flame resistant.

Special ceramics, highly resistant to direct arc exposure, are used in jump gap cooling plates, arc chute liner plates, arc plates and spacers. These have high dielectric strength, low moisture absorption, won't track, are excellent interrupting materials. They do not deteriorate when subjected to direct arc exposure. They absorb thermal shock and deionize gases without excessive heating.

Phenolic and polyester insulating sheets and moldings, specially treated to provide the highest possible degree of flame-retardant characteristics, are also used.

If you are planning new construction or modernization requiring electric power, consider the advantages of I-T-E equipment. Consult your local I-T-E sales office or write I-T-E Circuit Breaker Company, 19th & Hamilton Sts., Philadelphia 30, Pa.

I-T-E CIRCUIT BREAKER COMPANY • Switchgear Division

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